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### Bone Dust and Super-Phosphate of Lime.

One correspondent writing to us from Pennsylvania, enquires if dissolving bones by steam is practicable, and if it has ever been done successfully in New York, as he had been informed it was to be, but not of the result.

Another writing to us from Michigan, requests us to describe the process of manufacturing the super-phosphate of lime from bones, for the benefit of Western farmers, who have to send East for any they may want, while tuns of bones are lying bleaching in their own fields.

It is our opinion that bone dust is better for land than what is sold under the name of super-phosphate of lime. Mills for grinding bones should be erected in various parts of every State, so as to afford facilities to neighboring farmers to obtain the bone dust without having to carry or send for it to a great distance. The bones could be first crushed between toothed rollers, like Battin's coal-breaker, and afterwards ground to any degree of fineness in a Bogardus, or like mill. Or if a farmer desires to dissolve his bones entirely, and mix the same with manure, he can do so by simply crushing them between iron fluted rollers, and mixing them with the manure heap of the stable, layer after layer during the winter season, taking care to have the top covered with straw, and some dry clay earth to absorb the ammonia.

Prof. Johnson asserts, in opposition to Liebig, that bone dust is a better fertilizer than the phosphate of lime. Bones for manure should never be burned, (a custom once practiced) but ground up in as fresh a state as possible. They contain sixteen per cent. of animal matter when fresh, and this for some soils, is the best part of them. The application of bone dust to pasture lands has been practiced with great success in many places, especially on dry light soils. On heavy wet lands, as a manure, bone dust is of no avail, at least it does not pay the cost. As great quantities of sulphuric acid are used in making what is known by the name of super-phosphate of lime, we believe it would not be profitable to manufacture this substance in the Western States, on account of having to import the acid such a distance. We therefore recommend the use of fine bone dust—home made—to our Western farmers.

### American Enterprise in Australia.

A magnetic telegraph line has been established in Australia. It cost about $1000 a mile, and was built by a Mr. McGowan, formerly of Boston, Massachusetts. The Americans appear to maintain their go-ahead character in that country. Besides the telegraph, which is under the management of Americans, a line of coaches has been established with several imported coaches from the States, running between the capital and its suburbs. An express office, a fire brigade, a post office, and the best hotels in the country are all improvements introduced by our countrymen.

### LATOURETTE'S GRINDING MILL

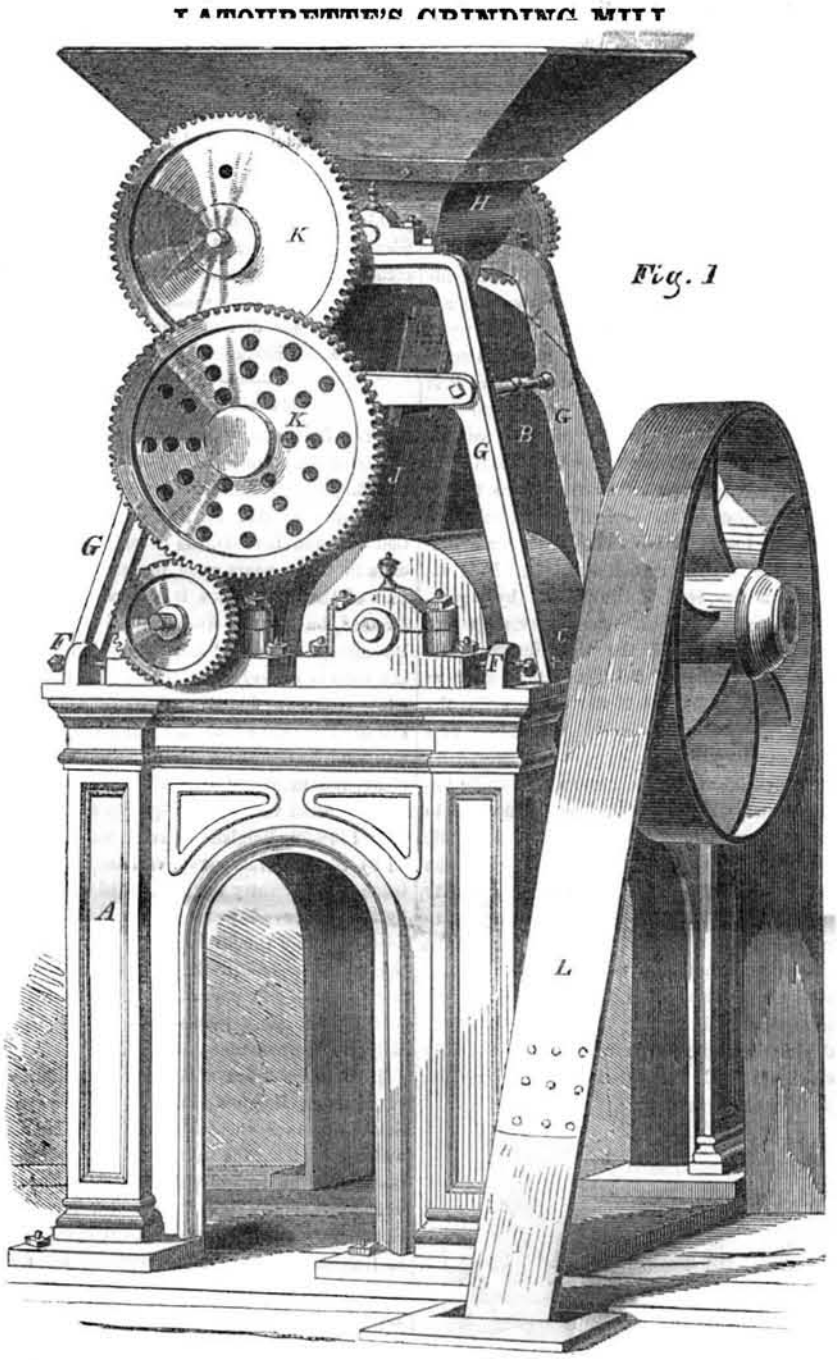


Fig. 1

On the 13th of last June (1854) a patent was granted to David L. Latourette, of St. Louis, Mo., for an improvement in Grinding Mills, of which the accompanying engravings are different views,—figure 1 being a perspective and fig. 2 a plan view of the grinding parts; the same letters indicate like parts. This mill is well adapted for grinding seeds for the

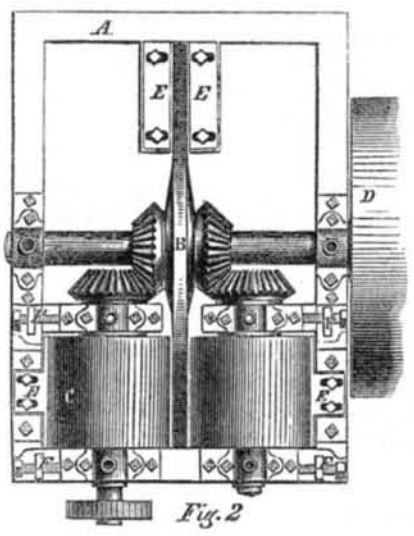


Fig. 2

manufacture of oil, and also for grinding mineral ores, &c. The nature of the improvement consists in having a central grinding wheel revolving between a roll or rolls, between the surfaces of which the oil seeds or grain, or minerals, are ground.

A is a frame of iron; B is a plain circular wheel, hung on the shaft, as shown, and made to revolve, by the belt, L. This wheel is turned off true and smooth on both sides, and revolves between the rolls, C C. The position of the rolls is at right angles with the shaft on which the wheel, B, is hung, and they are situated on a horizontal line, as shown, or may be placed on a vertical line, or at any intervening angle; or the wheel itself may be horizontal, and the rolls arranged underneath and above it, though the arrangement shown is believed to be the best. Motion is given to the rolls, by the bevel gearing, as shown. They are turned off true and smooth, and lie against the side of the wheel, B, so that any substance passing between them is ground. The set screws, F F F F, are made to regulate the space between the rolls and the wheel, so that the substance is ground more or less fine, as may be desired. The grinding surfaces of the rolls and wheel are kept clean, when grinding any sticky substance, by the scrapers, E E E E, which are fastened to the frame, A, by set screws through slotted holes in the scraper, as shown. G is a frame which supports the feeders above. H is a hopper, which contains the substance to be ground after it has passed through a wire screen, and separated from any large hard substance, which would injure the machine. In the bottom of the hopper two fluted rolls are made to turn by the gearing, K, the flutes gathering the substance as the rolls turn, and deliver it through funnels in a thin, continuous and uniform sheet, to the grinder below. The liquid, on being fed in between the block and wheel, is carried over the ridges and out below, of any requisite fineness, determined by the set screws, F. The wheel, B, working between rolls, C C, as shown, gives a most effective grinding motion, and the grinding surfaces are easily kept clean and in good order. If in this arrangement the grinding effect is found too great for any business, it may be diminished by making the wheel, B, wedging or V-shaped, and the rolls conical to correspond. The wheel, B, may be worked with one roll, by having a friction roller bearing against the opposite side of the wheel. Or, if found desirable for any purpose, two or more pairs of rolls may be worked with one wheel, by arranging them at different angles around it. In grinding large hard substances, the machine may be made more effective by making the wheel, B, of large diameter, and having a heavy fly-wheel rim projecting beyond the ends of the rolls, so as to cause it to run strong and steady. A high or low speed may be given to the machine, as the business for which it is used may require. The one from which the engravings are made is run at a high speed, and is found to grind in a superior manner thirty bushels per hour, with three horse power. The wheel and rolls are made of fine cast iron, chilled or otherwise; great strength and width of bearing is given to the journals of the rolls. By arranging on the sides of the wheel, B, a series of knives radiating from the center, and adapting the rolls or blocks to the purposes for which the combination is made, a very effective instrument is secured for cutting straw, shearing cloth, planing lumber, or for purposes analogous, the knives acting as a rotary shear. This useful invention has been secured by Letters Patent in Great Britain through our agency, and we presume will soon be put upon sale there.

More information may be obtained by letter addressed to the inventor, Mr. Latourette, at St. Louis.

### The Coach Maker's Guide.

We have received the Coach Maker's Guide for 1855, by C. W. Saladee & Co., of Columbia, Ohio, and we are happy to say that it exhibits a great improvement over the volume for 1854. As this is a work devoted entirely to carriage makers, we take pleasure in calling the attention of this class of our mechanics to its contents. It has two large plates of drawings containing 51 side elevations of the most fashionable carriages, and the accompanying volume of explanations has chapters treating on the wood and iron work, and on the trimming and painting of carriages which are illustrated with quite a number of wood-cuts. The charts of drawings are explained in a very lucid and comprehensive manner. It appears to us, that such a work as this must be of immense advantage to every carriage maker in our land, both near and remote from the circles of fashion. It at once places carriage makers who live far from the large cities upon an equality with those who live in them. It is our opinion that no carriage maker can keep up with the progress of things, unless he takes this work; the receipts for painting being worth the whole price of book and charts.

The cholera has been very severe in many localities in this city; the victims have been mostly poor foreigners.

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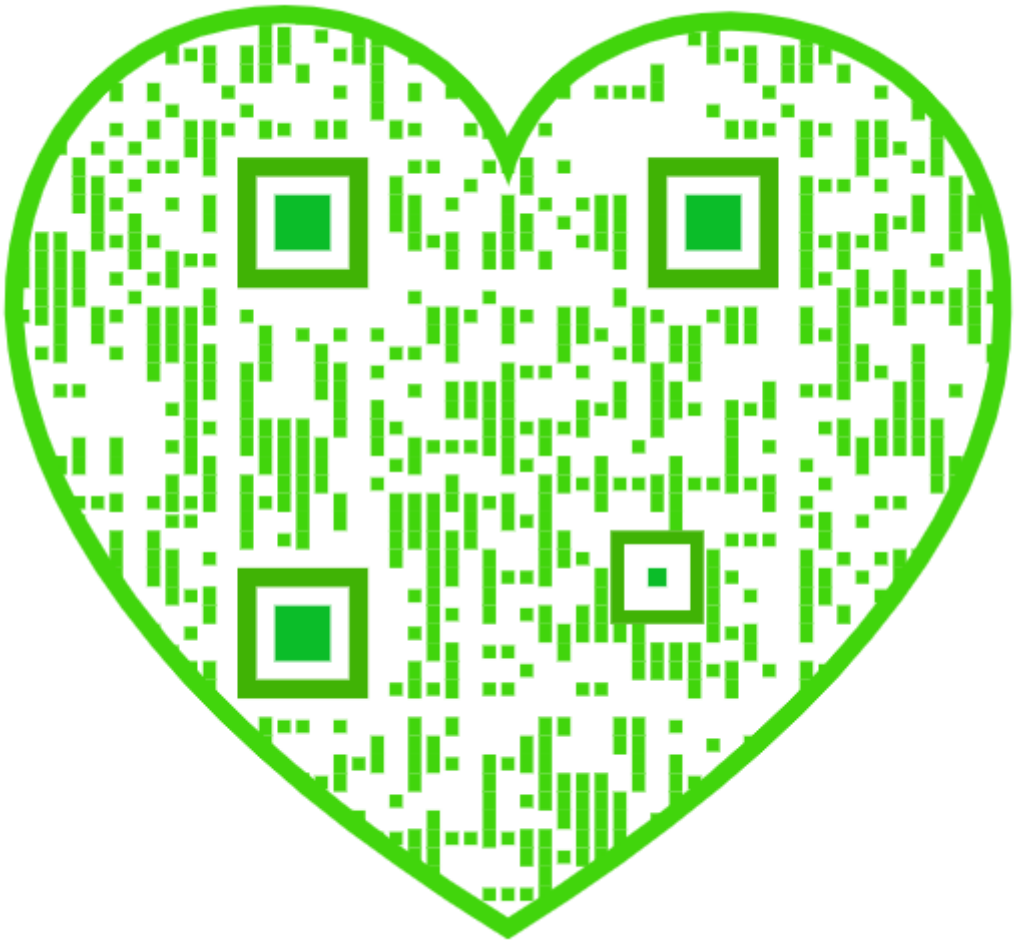

### Bate's Apparatus for the Cure of Stammering.

Heretofore, there has been much difference of opinion as to the cause of the annoying habit, among physiologists and elocutionists, designated "stammering." Some investigators, who have entitled themselves to rank high, still refer it to a portion of the general vocal apparatus, which more recent investigations would seem to indicate as only concerned in the failure of that portion of the perverted or interrupted sounds, classed as gutturals—that is, the *glottis*. Where the glottis is undeniably at fault, a greater or less spasmodic closure takes place in the valvular arrangement of that organ, whereby an arrestation of the ascending column of air is effected, and the gutturals, such as *king*, *court*, *great*, *goose*, &c., fail of enunciation. Sometimes the interruption is so sudden and complete as to cause the most painful and hideous distortions of the entire facial muscles, which only cease when the air finds egress through the glottis.

These guttural interruptions do not occur in the enunciation of *vowels*. They flow without difficulty, being simply modifications of sound formed in the larynx, uninterrupted by the oral machinery. The *consonants*, which take their name from a latin word, expressing incapacity of intelligible sound, except with vowels, (*consonant*—sounding with) require various and sometimes difficult and delicate adjustments of the vocal apparatus. Hence the difficulty which children experience in learning to talk. Especially does this obtain in attempts by stammering to produce the class of consonants known to physiologists as explosives, such as *b*, *t*, *d*, *g*, &c., they having no independent sound beyond the merest uncontrolled explosion of the breath, and hence being known as mutes. Not so with *h*. *m*, *f*, *r*, &c., which admit of a prolongation of sound, though they also require to be combined with some vowel, to insure enunciation.

There are several different ways in which the stammerer's attempts at intelligible articulation may be arrested. It may be in fruitless efforts at self-adjustment by the tongue to the cavity of the mouth, to form lingual, labial, or guttural sounds, or those compounded of these, severally, and denominated dento-labials, and linguo-dentals, &c.—for we are now proceeding upon what is regarded the improved theory, viz., that the bony cavity and muscular appliances of the Mouth, as contradistinguished from the Throat, are mainly concerned in phonation. In failures to make the various sounds just classified, the tongue, instead of so adjusting itself, in turn, against the palate, the teeth, the lips, &c., as to form the required vocal tube, presses against these points so uncontrollably as to block up the voice entirely, for the moment, and to let it pass only as the result of a spasmodic effort of the will to overcome the obstruction, the influence of which is perceptible, not only in the stammering sounds, but in the facial muscles as well. The remedy is plainly indicated by the conditions which are severally detected, and must consist in artificial aids to the proper adjustment of the tongue and lips, in the instances of orally seated difficulties, and of the muscles of the throat in the guttural ones, the desired result being attained in a two-fold way, viz., by direct mechanical and indirect mental assistance—confidence restored being a most important desideratum in the curative process. The plans of cure heretofore suggested, have not only been mostly predicated upon the theory of the glottis being the sole seat of the difficully, but they have been chiefly mental,—that is, have mainly relied upon the will of the stammerer, instead of relying to any great degree upon involuntary mechanical aid. Such are the various thousand-and-one "secret cures," with which the veriest charlatans have excited the hopes of their victims, to filch from their pockets, and this to an extent which has rendered it embarrassing to get the public attention to a hopeful consideration of any new suggestions such as we have in view in this article.

The above remarks upon the anatomy and physiology of speech have been deemed essential to a correct comprehension of the new principle of cure which the following diagrams illustrate, and of which Robert Bates, of Philadelphia, is the patentee.

Fig. 1

Figure 1 is a belt intended to be worn around the neck after the manner of a stock, with a view to pressure upon the glottis, as the seat of difficulty with respect to guttural sounds. The letter *g* represents a curved metallic spring acted upon by a screw, *f*, which works through a solid metallic plate, *e*. The spring is shielded on the inner and concave side by a morocco pad which rests upon the neck. By turning the screw, the pad is made to press upon the glottis to the extent desired, whereby it is kept open for the free passage of the air employed in the articulation of guttural sounds. These metallic appliances may be concealed in an ordinary stock or a cravat. Figure 2 is a representation of the roof of the mouth and the upper teeth. *a* is a thin, polished, and flattened tube, of either gold or silver. It is attached to the roof of the mouth by a gum-elastic spring, *b*, which passes between the teeth, so as to hold the tube firmly to its place. One end of the flattened tube, *a*, opens against the interstices of the teeth, while the other points backwards and upwards. This tube carries off the breath, which would be converted, in its absence, into a spasmodic lingual sound, when the stammerer attempted to utter a consonant, because of the spasmodic adherence of the tongue to the roof of the mouth. The air passes from the vocal cavity in a whisper-like, inarticulate, and unexplosive sound, making no voice whatever. Thus the stammerer is notified that the difficult sound has been reached; and being timely warned, he re-adjusts his tongue, and utters the words at which his voice was arrested, with a facility which agreeably surprises him, and gives him confidence for the future.

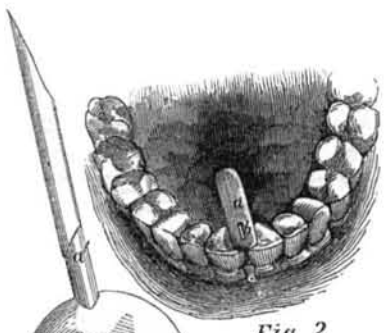

Fig. 2

Fig. 3

Figure 3 is a small metallic disk, convex on both sides, and hollow. In the center of one side is an aperture, *c*, designed for the ingress of the expired breath to its cavity, while in its periphery there is another aperture for the egress of the breath from its cavity into a little straight tube, *a'*, which conveys it from the cavity of the mouth. This instrument has reference to the labial sounds. It is worn in the angle of the mouth, resting against the teeth, with the straight tube, *a'*, pointing obliquely outwards. It arrests the stammering words of the class for which it is worn, in the same manner as fig. 2, conducting a mere inarticulate gush of air, instead of a peverted vocal sound. This little tube may be armed with a quill toothpick, *b*, whereby its length is increased without decreasing its utility, and its real purpose is disguised. Originally, Mr. Bates used a combination of two flattened tubes, similar to fig. 2, which were united and fastened to the roof of the mouth when it was desirable to arrest both the lingual and labial impediments, or but one applied when the lingual sounds alone were the object of treatment. These he has separated and improved in important particulars, which the scope of this article will not allow us to point out, our purpose being, in fact, merely to direct those interested to the principle of this plan of cure.

It may serve the purpose just named better than the expression of any opinion of our own, to state that Mr. Bates' apparatus has successfully passed the scrutiny of a committee of the Franklin Institute, whose favorable report announces the bestowal of the usual tokens of approbation, and also the affirmative opinion of Professor Dunglison, who is known as a deservedly eminent physiologist, given in a clenic before the class of the Jefferson Medical College of Philadelphia, and more recently by a publicly appointed Committee of medical professors and students of the New York Hydropathic and Physiological Schools; and other friends of science and interested persons, including several inveterate stammerers, appointed a Committee of Investigation, on which we find the names of Professors R. T. Trall, M. D., and J. E. Snodgrass, M. D.

### Flax Industry.—No. 13.

Flax Industry of Russia.—We have already stated that the North, West, and center of the Empire are the principal sources of the production of flax in Russia. In Lithunia, Courland and Livonia, the peasant grows flax once in three years upon the same soil; in a part of these provinces it is grown principally for seed, but the flax fiber yielded is nevertheless merchantable as "inferior quality," unless the crop is entirely neglected. In those districts where the flax is cultivated for the fiber, the seed is sold under the title of "swingled flax seed." The most usual method of rotting is by the means of stagnant water, and the time required varies from eight to fifteen days.

In 1838-39, Belgian workmen were employed by the government in various districts, to teach the peasantry the method of rotting flax by the improved processes used in the Low Countries, and the Minister of Finance was authorized to distribute the sum of one thousand silver roubles, in premiums, to the peasants who should most successfully carry out the Belgian improvements.

In quality the flax of Russia ranks after that of Holland, Belgium, France, and Germany. Some attribute this inferiority to difficulties which arise from the nature of the climate. It is said that in Russia "the season proper for vegetation is too short." The flax grows and ripens too quickly—much faster than in France or Belgium, where nature performs her tasks more slowly and perfectly. Flax in Southern Europe, when sown in March, generally experiences some bad weather, which hinders its first growth, and strengthens the root, and when the warm season afterwards comes on, the vegetation is vigorous and furnishes a flax more delicate than the flax of the Baltic. A difference is noticed even in France, when the sowing is protracted from March until May, or June, then, here the crops grow more quickly and the quality of the fiber closely resembles that of the Russian flax.

Two reasons concur to favor the exportation of the flax from Russia, viz: the low price, and the divisiou of flax into classes according to quality.

The cheapness of flax is owing to the fact that the Emperor and the nobles possess all the serfs, and have thus an abundance of cheap hand labor. The land is of little value, and the peasants have little to occupy themselves with in the long winters with the exception of dressing flax.

Flax, in common with all other productions of the conntry, is classed according to its quality. This is effected as follows: When the flax arrives at Riga, or St. Petersburg, it is stored in depots specially designated for the purpose. Here inspectors, appointed by government, are charged with the duty of classifying it. All marks and designations are first obliterated; the bundles are then opened, and all which is not of the first quality is taken out and placed by itself. This second lot is again examined, and again sub-divided according to its quality. A commission appointed by the buyers watch over the inspectors, and no sample of flax is examined unless one or more of the commission is present. When the classification is effected each parcel receives its distinctive mark. The expense of these regulations, which is inconsiderable, is borne by the proprietors of the flax. This plan offers all satisfactory guarantees to the purchasers, and the owners are prevented taking any unfair advantage.

The export of flax and hemp from Russia has greatly increased within the last twenty years, and is progressing. The largest proportion exported finds a market in England.—Taking the trade of 14 years, from 1840 to 1853 inclusive, it appears that during the first seven years of this period Great Britain was indebted to Russia for 72 per cent. of all her hemp importations; and during the last seven years for about 62 per cent. of flax. About two thirds of all the quantity imported is Russian. From tables of European commerce recently published, it appears that the 28,000,000 of British people annually export produce to the value of about 90,000,000*l*. sterling—the 36,000,000 of the French export to the value of about 50,000,000*l*.—and the 67,000,000 of European Russian exports to the value of about 14,000,000*l*. Russia exports raw produce exclusively—consisting chiefly of grain, tallow, flax, linseed, hemp, wool, timber, and bristles; the three items first named commonly exceeding in value all the rest.

The following statistics of this flax and hemp exportations of Russia, furnish some idea of the extent of the production of these substances in that country.

The yearly average importations of flax, hemp, and tow into Great Britain from Russia for the ten years ending 1851, was 160,000,000 lbs. The other countries ef Europe import as follows: France, in 1838, imported of flax and hemp, 17,000 lbs.; in 1846 the Russian imports amounted to over 15,000,000 lbs., and in 1849 to 20,403,466 lbs. Belgium, which in 1838 imported only 4400 lbs. of flax, imported upwards of 4,000,000 lbs. in 1846.

The Russian export of flax seed averages annually about 9,000,000 English bushels.

At the Exhibition of the Industry of all Nations, at the New York Crystal Palace, in 1853, a new variety of flax and flax seed from Russia was exhibited by Mr. Leon Falkersaborf, Member of the Agricultural Societies of St. Petersburg, Moskowa, &c., &c. It was described as a new variety of flax, sown as a winter's crop, and superior to the Spring sown seed. The samples of the flax fiber produced from this seed, which were exhibited in connection with it, were the most perfect as regards strength, luster, and life-like appearance of any on exhibition, and were only surpassed in fineness by one extraordinary premium sample exhibited from Ireland. Samples of this flax seed have been ordered by Mr. Johnson, the Secretary of the New York Agricultural Society, for distribution among American flax growers, and it is to be hoped that its introduction may prove successful and important.

Most of the thread manufactured in Russia is spun by hand. There are, however, two establishments for machine spinning, the one at Alexandrofsky belonging to government, and introduced as a model, the other a private establishment of little importance. Both together contain about 50,000 spindles. Notwithstanding, Russia exports a considerable quantity of yarn to America, and supplies in addition, the domestic consumption. The manufacturers in the vicinity of Moscow, Jerosloff, and Archangel, furnish the common fabrics consumed in the Empire. Fine linens are imported into Russia to a slight extent, the yearly average not exceeding 35,000 lbs. in weight. Notwithstanding the low price of the raw material and of hand labor, this branch of national industry is protected by an excessively high tariff of duties, and sail cloth, canvas, and cordage of all descriptions are contraband.

A number of our cotemporaries have published the New Patent Law, and have commented upon it severely; it meets with no favor.

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### Scientific Memoranda—American.

A Snow Arch.—The "State of Maine,' published at Portland, says that one of the greatest curiosities ever witnessed at the White Mountains is now to be found at Tuckerman's Ravine, about three miles from the Glen House. It consists of an arch of pure snow, spanning the brook that tumbles over the rocks from the summits of the mountains. The ravine is the receptacle of all the snow that blows from the top of Mount Washington, and there can be no doubt that during the winter it accumulates to the depth of several hundred feet. As the brook begins to run in the spring it wears its way through under the snow, which gradually melts away at the approach of summer, making the cavity larger and larger. On the 16th of July this ravine was visited by several gentlemen, one of them being an engineer, by whom the arch was measured. It was found to be 180 feet long, 84 wide, and 40 feet high on the inside, and 266 feet long and 40 feet wide on the outside. The snow forming the arch is 20 feet thick. The gentlemen walked through the arch in the bed of the brook, and ate their dinner at the foot of the cataract, which falls a thousand feet down the side of the mountains. The arch is on the south-east side of the mountain, and is exposed to the rays of the sun during most of the day. Last year it remained until August 16th, when a warm rain of several days' continuance melted it away.

Sea Island Cotton for Spinning.—The following is an extract from a letter of T. Bayley, President of the Manchester Chamber of Commerce, to Geo. M. Sanders, and for it we bespeak the careful attention of all the planters engaged in the cultivation of this staple:

"To the simple question, 'do the manufacturers of Sea Island Cotton assort it by the lock,' I can give the positive reply that they do not, nor would it upon an extensive or practical scale, be possible for them to do so. The spinners of the fine Sea Island cotton, of course, esteem the longest stapled cotton as the best, and in all their processes they get rid of as much short fiber as they can, and preserve unimpaired all the long fibers. Essentially the art of the cotton spinner consists of disentangling the fibers of cotton, in freeing these from all extraneous substances and impurities, in securing the longest fibers, in obtaining them of equal length, and finally placing them parallel, so that they will freely and evenly pass each other in the subsequent progress of elongation into a line of yarn or thread.

From my own knowledge, the cotton of Florida is an excellent and desirable quality for the spinner, but it has been sent to market in a 'craply' or knotty condition, which has greatly diminished its value. I have seen Florida cotton cleaned and prepared by the McCarthy gin, and which cotton, I believe, has been increased in value by that preparation to the extent of twenty per cent. That his gin, applied to Florida cotton, would be a great advantage, does not admit of a doubt.

If the cotton planter would always recollect that the spinners require only pure, even, and disentangled fibers, I have no doubt he would save himself much trouble, and increase the value of the cotton; and it he could classify the fibers according to their length, and pack the cotton in bales with equal and assorted fibers, a further advantage would be the result."

Mules.—M. R. Cookrell, in the "Republican Banner," (Nashville, Tenn.) an extensive planter, presents the following useful information on the mule:

"The mule is the great field laborer in the commanding staples of the South, cotton, sugar, and rice, and as he is one of the annual exports of Tennessee, and as he will continue to be so, he is destined to hold even a higher position than heretofore among the *live stock* of the State. The large, heavy-boned mule producedfrom overgrown jacks of excessive heavy bone, or improper pampering, are generally lazy, or soon become so by labor, and become very slow; their driver may force them on, but in a few steps they take their slow, natural gait again. Such mules are therefore almost worthless, and should not be bred if it can be avoided. The most perfect mules are not to be expected from the excessively large, coarse-boned jacks, or excessive high feeding, but from the laws of nature carried out to the greatest perfection by skillful breeding and feeding.

An error has existed for many years, and still exists, concerning the size of mules. Size has been made a measure of value in the mule, almost regardless of form and spirit, and so it has been in their sire, the jack.

I have been employing a mule team for twenty-five years in the cultivation of cotton in Missisippi, and my team now numbers one hundred. In this time I have used every variety of the mule, (except the most inferior kind,) that has ever been grown.

At the commencement of my planting operations I adopted the prevalent error, that size was the measure of value, and pursued it for many years, much to my prejudice. By long trials, and by comparing the relative performances and lastingness of the large team which I have used, aided by observation and reflection, I am fully satisfied that the medium sized mules, full of spirit and action, with a neat firm leg and a round body, with his levers set right for easy motion, his head and ears up, ready to move at the word, is the animal of most value of his kind."

### Foreign Scientific Memoranda.

Flax; the Losses of Ignorance.—It is certainly a curious contrast that on one side, British India is exporting £300,000 worth of flax-seed, and throwing away £500,000 of fibre; on the other, Ireland is raising to the value of £2,000,000 of flax fibre, and rotting in the steep-pools £500,000 worth of seed! It is Russia alone that has been benefitting by the ignorance of the Hindoo ryot and the prejudices and carelessness of the Irish farmer. No particle of the valuable plant is allowed by her nobles to go to waste. She sells us to the value of £3,000,000 of fiber, and £900,000 of seed each year, and does not even take our manufactures in return. The Hindoo burns the fiber, and the Ulsterman rots the seed, which, turned into money, would buy our manufactured goods, and largely help to free us from reliance on a State whose political system must frequently lead to a crisis like the present, and whose commercial policy must ever deprive us of half the benefits of international trade.—[Belfast Mercury.

Moral Effects of Machinery.—Machinery cannot be made to share too largely in human toil, but it should ever be regarded as desirable only so far as it relieves man and emancipates him, and not as degrading and enslaving him. The government of Prussia and the people of the United States alike entertain this view.—[Dundee Advertiser.

The Causes of Chain Lightning.—In a discourse recently read before the Royal Academy, by Dr. W. R. Grove, it was stated and proved by experiment, that the effects of rarefaction upon gases, either as produced by the air pump or by heat, tend to render discharges of electricity more facile, and to enable them to pass across much larger spaces than would otherwise be the case. So strikingly was this evidenced with flame, that when the flame of a spirit lamp was held near one of the terminal points of a coil apparatus, the terminals being separated to a distance far beyond that at which the spark would pass in cold air, the spark darted to and along the margin of the flame, and could be curved or twisted about in any direction, at the will of the experimenter, giving a perfect illustration of the crooked form of lightning, and of the probable reason why it does not pass in straight lines—the temperature of the air being different at different points in its passage, and much of this variation of temperature being in all probability occasioned by the mechanical effects of the discharge itself upon the air.

Hobbs Again.—Mr. Hobbs, the celebrated American lock maker, is at present on a visit to Liverpool. He is the guest of Mr. Milner, and has been engaged with that gentleman in arranging locks on the new powder-proof principle just patented by Mr. Milner. Mr. Hobbs paid a visit to Mr. Lister at the Union Bank. He was shown the strong room and was asked could he pick the lock on the door, as it was deemed one of the very best. He said "yes," and applying an instrument he effected an opening in a few minutes. Mr. Hobbs is coming again to Liverpool in a few days, and he is to furnish the Union Bank with one of his American locks, and probably some of the other banks also.—[Liverpool Mercury.

Acorn Coffee.—There is in Berlin, Prussia, a large establishment for the manufacture of coffee from acorns and chicory, the articles being made separately from each. The chicory is mixed with an equal weight of turnips to render it sweeter. The acorn coffee, which is made from roasted and ground acorns, is sold in large quantities, and frequently with rather a medicinal than an economical view, as it is thought to have a wholesome effect upon the blood, particularly of scrofulous persons. Acorn coffee is, however, made and used in many parts of Germany for the sole purpose of adulterating genuine coffee.

### American Hardware, and Mechanical Skill.

The following from the "United States Economist," will open the eyes of thousands of our people to the growing importance of certain kinds of manufacture, made at home, and which the great majority of our people suppose are made in England:—

"The manufacture of many articles of hardware has lately been introduced into this country, and firmly established. This has, in fact, been constantly going on for many years. Forty years ago not more than half a dozen leading articles of the trade were of our own manufacture; the rest were all imported; now, by far the greater part of the trade is in articles made by our own artisans. The imported articles, too, are, one after another, yielding the palm of superiority to those of American manufacture. American enterprise, machinery, skill, and ingenuity are more than a match for European fogyism. The English manufacturers aim at producing a cheap article, strong enough to avoid being blown to pieces by the wind; the American manufacturers aim at producing, and, in nine cases out of ten, succeed in producing an article as cheap as that imported, and possessing, at the same time, the qualities of simplicity, strength, and durability. This is especially the case with regard to light articles, such as door latches, locks, &c. Many of our heavy articles are unapproachable by the English imported goods. For instance, our Eagle anvil, with its cast-steel face, is firmer and more durable than the English anvil, of wrought iron. The American chain vise is an improvement unknown there. The augers made here are far in advance of the English ideas of progress, and so of many other articles. Five years ago masons' trowels were all imported; now $30,000 worth of trowels, confessedly superior to the English, are made by one manufacturer—Mr. Bisbee, in South Canton—and his business doubles annually. Even the celebrated Congress penknives are now reproduced by our own workmen with all the elegance and excellence of the English knife, and we might extend the list indefinitely. Again, the American goods are generally warranted, an advantage not possessed in our home market by those which are imported.

The exportation of American hardware has sprung up, almost entirely within the last few years, and is rapidly becoming a very extensive business. Already have American goods found their way into the British Provinces, and are there preferred to their own (English) home manufactures, thus competing successfully with English goods in their own markets. The exportation to Canada especially is rapidly increasing, and almost doubles annually. The Douglass axes are sold even in London. Large quantities of goods are also sent to the West Indies, South America, and to all parts of the world."

### Lancaster New Locomotive Works.

This establishment is now in operation, and when fully manned will have 600 hands at work, which are now being employed as fast as workmen of the first class can be secured.—Four first class locomotives are now in progress of construction, for the Pennsylvania Railroad. These engines are to be model machines.—The Superintendent of Construction, John Brandt, under whose direction the Paterson Engines, now running so successfully on our State road, were built, is applying his peculiarly strong intuitive mechanical genius to the improvement of these new kind of locomotives; and highly intelligent mechanical minds are looking with much solicitude to the completion of them. Mr. Cochley, the President of the Company, has given Mr. Brandt a *carte blanche* in the construction of these fore-runners of the establishment, and Mr. B. is devoting all his well-earned experience to the perfection of these engines.

If Mr. Brandt succeeds with these in the same ratio as he did with those at the Paterson Works, we bespeak a reputation for the "Lancaster Locomotive Works" that will be second to none in the world. Two of them are to be completed in September next, when they will be tried. J. W.

Lancaster, Pa., July, 1854.

### Working Locomotives by Contract.

Herapath's "London Railroad Journal" gives an account of a plan which has been adopted for working the locomotives by contract, by the engineers on the Eastern Counties Railway. The Company supplied the material, fuel, &c., at cost price, and the engineers worked the locomotives for so much per trip, and made the necessary repairs. The plan has worked well, and has proved highly advantageous to both parties. The head locomotive foreman, R. Forsyth, says, respecting the system:

"The greatest proportion of repairs required under the day-work system, can, without doubt, be traced to neglect alone, and which could in most part be entirely removed by the care required under and inseparable from the contract system.

The contract system of working tends in every respect to maintain the stock in the highest possible state of efficiency, and therefore to reduce all irregularity of working (involving risk of accident) to a minimum, because, as the shop repairs are not included in a driver's contract, he must be greatly interested in having the highest possible efficiency of engine maintained at the cost of the Company.

Additional work could be done with the present stock of engines, and greater earnings worked for without increasing the capital for additional plant. Perhaps—and I believe—the greatest advantage of the system would be that of a driver contracting for a particular train would have regularly recurring intervals of rest and labor, and thereby be much better fitted to do his duty to himself, the public, and his employers than he now is, while obtaining irregular intervals of rest and labor, involved in the present system of working round. No man need try to persuade me that regularity in rest and food is not better for my health than an opposite state of things. I have tried both and know the difference.

I am one of those who believe from the more than 20 years' experience I have had, that with proper care nearly all railway accidents can be prevented, and that nothing will tend more towards that most desirable state of things than a careful application of the 'contract' system. In a great many so-called 'accidents,' which it has been my duty to investigate, I am convinced that nearly all of them could be traced to a cause which might have been prevented by care and vigilance on the part of the drivers. To show that I am in earnest I should be most happy to forego the receipt of any more salary if the Directors will generally introduce the contract system, and pay me a per-centage upon the reduced cost and improved working consequent upon it.

The people of Versailles have been delighted with the visit of a beautiful humming bird to the garden of one of the citizens, the first ever seen in those latitudes. It is thought that it may have escaped from some vessel newly arrived from the tropics. It appeared ravenous for food.

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# New Inventions.

### Printing Railway and other Tickets.

On page 299, this volume, "Scientific American," there was published the claims for a patent granted for a machine to accomplish the above objects, the invention being that of Thomas Edmondson, of England. The legal executors and representatives of the deceased inventor, are Joseph Edmondson, and Caleb Haworth, the latter being in this city, with one of the said machines. The invention is a good one, and should arrest the attention of all those who are engaged as officers and managers of railroads. The machine prints on each of a number of tickets, the same names of places of departure and arrival of a train or trains, or to produce on them any other impression, and to number them consecutively. The blank tickets are placed in a feeding tube from which they are fed one by one to a horizontal table, over which is placed a box containing the type to give the impression which is to be repeated on all the tickets. This type box has a vertical rising motion to allow the inking roller to pass under and ink the type, and while descending to give the impression to the tickets as they are successively deposited below it. After being thus printed, each ticket is carried forward along the table and brought under rollers whose peripheries are furnished with type, to represent consecutive numbers all the way round, and each ticket is numbered by a stamper pressing the particular number on it that is set on the revolving wheel. After each ticket is thus printed and numbered it is fed into a receiving tube, in which the proper numerical order of all is preserved.

### Printing Press.

It is well known to printers that much better printing is performed by the flat reciprocating than the rotary press, and this is the reason why all books of superior workmanship are printed on the former kinds of presses. The advantage of the rotary press consists in its greater rapidity of execution, both in printing and feeding the sheets. It has always been allowed, however, that if a superior and more rapid method of feeding could be applied to the flat printing press that its value would be greatly enhanced, because while it would still produce the best work, it would be coming up to the rotary press in the only element for which it is distinguished as being superior —speed. This has been attempted, and so far with success by Ervin B. Tripp, of Concord, N. H., who has taken measures to secure his improvement by patent. Various devices are employed to produce this result, and these are so combined and arranged as not to be intelligible without an engraving; we therefore merely describe the objects to be accomplished, the feeding motion being one, and a second consisting of an improvement in inking the form. This consists of an endless belt and oblique rollers, so arranged and combined with the ink fountain and other rollers as to ink the form in a rapid and superior manner.

### Expanding Bit.

So far as we can learn, better augers, bits, and many other tools for working in wood, are made in America than in any other country. This is the natural result of living in an extensively timbered region. All large machines for working in wood have also attained to greater perfection in our country than any other, and some of these perfectly astonished the British Commissioners who were appointed last year to visit the New York Crystal Palace. But the word *perfection* has a very lofty meaning with some people, especially with our countrymen; they are not contented with saying, "let well-enough alone," in the old fogy principle, without first proving that there is nothing better. This appears to be really true with respect to improvements in the above named tools. Excellent *bits* are made in various places, but Wm. Gage, of Buffalo, N. Y., believes he has made them a good gauge better, and he has therefore applied for a patent on his improvement, which consists in attaching the cutting portion of the shank in such a manner as to allow it to be so adjusted at pleasure, that it can bore holes of various diameters; a very economical improvement indeed.

### Cording Bedsteads.

Various plans have been and are still employed for tightening corded bedsteads, such as the common two-legged key and wedge pin, a pair of small hand windlasses, and also hand pulling on the button pinned bedstead.—John Murphy, of Shelbyville, Indiana, has invented a small hand windlass attached to one end of the bedstead, and carrying round the cord over small pulleys secured to the bedstead rails, by which means he tightens the whole cord with great ease and facility at one continuous operation, by turning the small hand-windlass. This improvement will prove very convenient for females, as the old plans for accomplishing the same object require no little expenditure of muscular fiber. Measures have been taken to secure a patent.

### Cutting Tenons on Spokes.

Application has been made for a patent on an improved mode of cutting tenons on the hub ends of spokes by R. L. Tibbet, of Shippensburg, Pa. The nature of this invention consists in securing in a peculiar manner, a series of spokes within a frame and so adjusting them by keys and set screws, that a plane of proper construction run over the ends of spokes cuts the proper tenons thereon.

### The Wheeling Bridge.

We perceive by the Wheeling papers that this suspension bridge is itself again, under the energetic superintendence of Mr. Ellet. Vehicles are now crossing it.

## IMPROVED GRINDING MILL.

Fig. 1

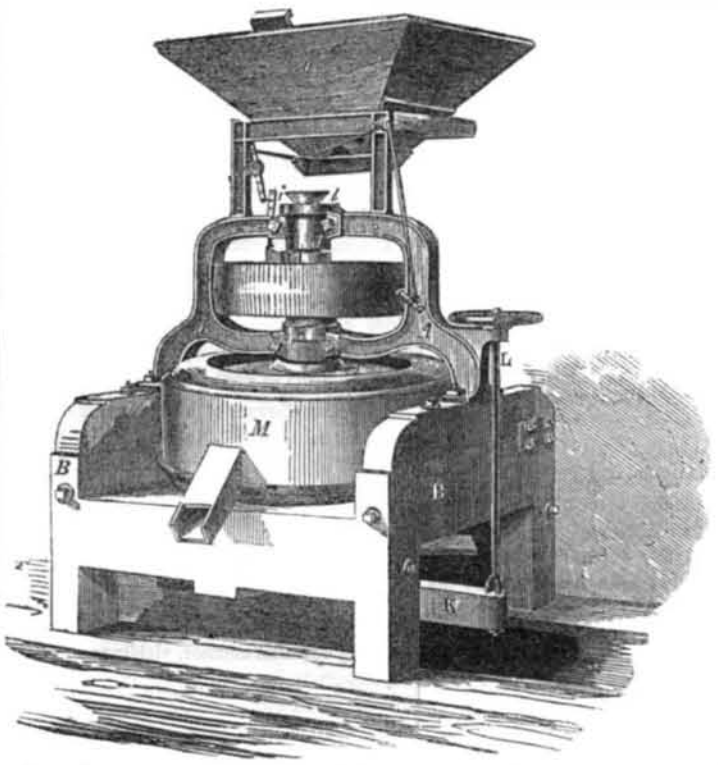
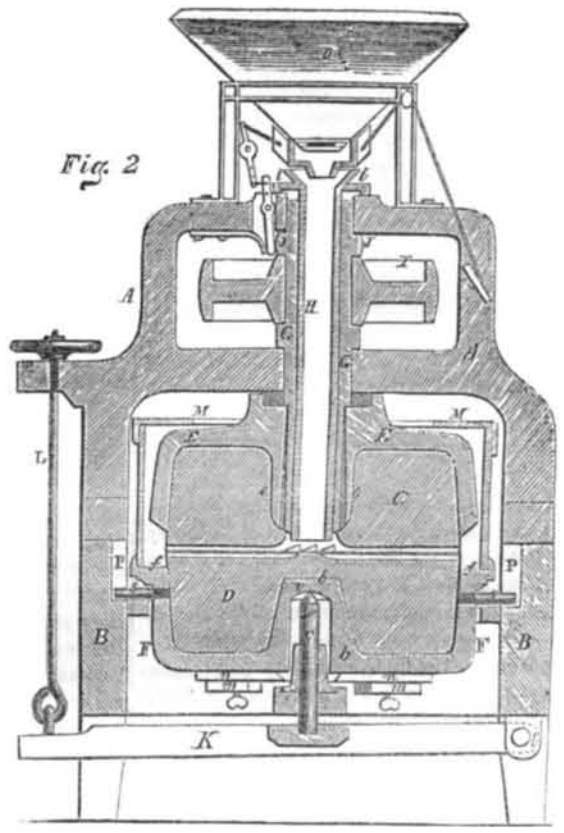


Fig. 2



Every improvement in mills for grinding is of vast importance, and this is the reason why so much attention is paid to render more perfect the operations of such machines. The accompanying engravings represent improvements in Grinding Mills, for which a patent was granted to John C. Reed, on the 6th of last June, 1854. Figure 1 is a perspective view, and figure 2 a vertical transverse section of the same. Similar letters refer to like parts.

The accompanying figures represent the frame of the mill made in two parts, A B, hinged or jointed together on one side, and clasped or otherwise secured so as to allow it to open on the other side. The top part, A, of the frame which shuts like a lid upon the lower part, B, carries the upper stone or runner, the feed spout, driving gear, and hopper, with their appendages, while the lower bed or still stone is supported in the lower part, B, of the frame. The stones, C D, are incased and supported in metallic cups or holders, E F, of a less depth than that of the stones, so that the grinding faces of the latter may project beyond the edges of the former. The cups are made sufficiently strong and heavy to support the stones. The central portion of the upper cup is occupied by a tube, *e*, cast in one piece with the cup, into which the lower end of the hanging spindle, G, (by which the cup, E, is suspended and rotated) is fitted and keyed so as to unite the two firmly. Into this hanging hollow spindle is fitted a tube, H, which also extends into the tubular extension, *e*, of the metallic cup, and through which the grain is fed from the hopper to the grinding surfaces of the stones. This tube, H, does not rotate with the spindle but fits loosely therein, and rests by a flange, *i*, on the top, or arch, A, of the frame. The annular space between the central tube, *e*, and the periphery of the cup is for the reception of the burr stones, or other grinding blocks, which are secured in position by cement or otherwise, in such manner that they will be firmly held in place, and at the same time admit of easy removal when worn, to be replaced by new ones. The spindle, G, carries a pulley, I, by which it is driven by a belt that receives motion from any convenient prime-mover. It also has one or more tappets, J, projecting just beneath its upper bearing, which as they rotate strike a lever that jars or shakes the shoe to discharge the grain from the hopper in the usual manner, to feed the stones. The lower stone, D, with its cup, F, in their general construction, resemble the upper stone, C, and cup, E, but central tube, *b*, in the lower cup is closed at the upper end with a thick cap, the under side of which forms a bearing, *v*, on which the cup hangs on the point of a pivot, *c*; this bearing is concentric with the periphery of the cup and above its center of gravity, that it may hang more stably. In order that the grinding surface of the lower stone may be kept parallel with that of the upper stone a series of weights, *m*, are fitted to the bottom of the lower cup in radial ways, *n*, by moving one of these weights towards the circumference of the cup, it increases the preponderance of weight on that part of the stone, and tends to lower that side which shall be raised again by returning the weights towards the center.—When the weights are adjusted they are held by set screws. The lower cup is prevented from rotating by two pins or trunnions, *s*, which project from opposite sides, and enter vertical slots, *r*, in the lower part, B, of the frame, but which permit the cup to rock freely for the purpose of adjusting the level of the face of the stone, and also allow the stone to be raised and lowered.

The pivot, *c*, which supports the lower stone is carried by a bridge-tree, K, secured by a hinge, *l*, at one end to the lower part, B, of the frame, and at the other end suspended from the upper part, A, of the frame by a rod, L, fitted with a lever nut at its upper end, by turning which the bridge-tree is raised or lowered, to raise or lower the bed stone. A curb or case, M, incloses the upper cup and stone resting at its lower edge upon an annular flange, *f*, on the cup of the lower stone, which flange forms a trough for meal to pass along to the spout through which it is discharged. In turning the upper stone over for the purpose of allowing free access to the faces of both stones. The first step is to withdraw the upper end of the rod, L, from its connection with the upper part, A, of the frame, and lower the bridge-tree, K, to let the lower cup hang by its trunnions or pins, *s*, on the bottom of the slots, *r*, in the lower part B, of the frame. The hopper, O, with its frame, is next removed from the upper part, A, of the frame, which may then be turned over. If feet were attached to the upper part of the frame so as to project above the hopper, there would then be no occasion for the removal of the latter, when the upper stone is turned over. In that case the feet of the lower part of the frame would require to be lengthened proportionally to the increased hight at which the feet would cause the upper stone to stand, to bring both stones to the same level. When the stones are thus opened out, the runner, which is the most difficult to dress truly and smooth, can be turned on its spindle, G, as if chucked in a lathe, and thus the chief difficulty in the way of dressing such a stone is avoided.

The assignees of this patent are Messrs. Buckingham & Co., Mount Vernon, Ohio. They are also makers of these mills, and any other information required may be obtained by letter addressed to them at said place.

### Turbine Water Wheels.

J. Warren, of Wareham, Mass., has made an improvement in turbine water wheels, which consists in the employment of cast-steel buckets firmly cast into the rim of the wheel, by which means he claims a great increase of strength. Mr. Warren does not claim any patent for the use of steel for the purpose, but he finds great advantages from its use in the construction of his improved turbine.

### The Progress of our Country.

One of the most glowing and eloquent descriptions that we have ever read of the progress of our country in every enterprize, is contained in the address of the venerable Dr. Nott, of Union College, delivered on the 25th inst. We will endeavor to present some extracts of it in the "Scientific American" of next week.

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Scientific American.

NEW YORK, AUGUST 5, 1854.

### Opium Eating and Drinking.

As the use of this drug is fearfully on the increase among us, especially—as we are credibly informed—among the female portion of our population, a few remarks on the subject at this time, may be the means of preventing some mistaken beings from becoming slaves to such an injurious vice.

We suppose that a great number of those who have become habitual users of opium, have first taken it either for the purpose of lulling pain or producing sleep, but perhaps the great majority of those who partake of it regularly, have become so from some craving desire, like that which leads to habitual tobacco chewing and smoking. As a medicine it is a blessing, in its proper place, and the great John Hunter, M. D., thanked God "for permitting such an antidote to the sufferings of mankind." But when used for no necessitous purpose, and taken habitually, it prostrates the finest faculties of mind and body, and instead of producing the pleasurable sensations attendant on its earliest use, it acts as a horrible demon, distorting the imagination and bringing down the strong and powerful to the most imbecile conditions of life. Mr. Madden, in his travels in Turkey, speaks of the practice as extremely injurious to the eaters. They lose their appetite, become feeble and tremulous, and perfectly miserable unless when indulging in the vice. Dr. Oppenheim, of Germany, says of the opium eater, "he is instantly recognized by his appearance, such as a total attenuation of body, a withered yellow countenance, a lame gait, a bending of the spine, and glassy deep-sunken eyes.' The eminent poet Coleridge, who formed the habit of indulging in this drug in a liquid state, was perhaps the most fearful opium drinker that ever lived, and much did he suffer in consequence. "For ten years," he says, "my anguish has been indescribable. Conceive a poor miserable wretch who for many years has been attempting to beat off pain by a constant recurrence to the same vice that reproduces it. In short, conceive what is most wretched, helpless, and hopeless, and you will form a tolerable notion of my state." This is the confession of a man possessing one of the finest minds that ever was encased in an earthly tabernacle. He was seduced into the habit through ignorance, by employing it externally and internally, to allay pain from a swelling of the knees, and so strongly did the demon coil itself round his nature, that he sometimes drank two quarts of laudanum in a week, and wished himself, in one of his sober moments, in a *mad house*, where he could not procure it.

There are, no doubt, many cases on record in which the effect of the habitual use of opium does not appear to have exerted a deleterious influence on health and longevity, but the question arises, would these persons not have enjoyed better health and lived through more years if they never had indulged in such a habit? As a general rule, experience would return an affirmative answer. Dr. Christisson mentions the case of an old woman who died at the age of eighty years, and who had taken half an ounce of laudanum every day for forty years, and enjoyed tolerably good health all the time; but for one case like this, an hundred could be produced whose experience might be written down in three words, *anguish* and *premature death.*

Every person should be fearfully watchful of forming any pernicious habit. "Man is fearfully and wonderfully made," and in no respect does he so much demonize his manhood and brutify his mind, as in the habitual indulgence of such a drug as the one which forms the subject of these remarks. As it is very seductive in its influence, let no one who reads these lines tamper with such a hurtful and delusive agent, in the hope of being able, after indulging in its use for some time, to stop at any moment.—The habit once formed, becomes strong as triple bars of steel, and it fetters the judgment, the reason, and the health to the floor of a darksome charnel-house.

### The Types of Mankind Again.

Since we penned the article on the above subject, on page 333, we have received a number of communications from correspondents, whose views mostly accord with those we then expressed. One correspondent however, takes exceptions to our remarks in the following language:

"I do not think Prof. Agassiz will contest your arguments against his theory of Human Fauna; you appear confused between physical and mental advancement. The Caucassian race now present the same physical traits as ever, the mental powers are improved. The race is as it was in the beginning.

The inferior Fauna have also advanced: the horse is no longer the wild beast of former ages, and the neat cattle are alike in artificial state—they have, so to speak, mentally improved, physically they are the same. The red man has not advanced one jot, and never will.—Bears and wolves are the same, and will not alter—depend upon it Agassiz is right."

We did not enter into the discussion of any part of the work on the above subject, excepting the paper contributed by Prof. Agassiz, which embraces a new theory in itself; and as its author stands high above the other contributors of the work in scientific learning, whatever he says must carry more influence with it. He is capable of doing more good and more evil than common men. We have not disputed his facts, but his conclusions—his reasonings upon those facts—and we hope he will yet abandon such a theory, for we conceive it to be contradicted by the very facts he has presented, and is altogether unworthy of his great mind and name.

As for the above correspondent, the author of the theory he attempts to defend, instead of thanking him, would, with us, rather request him to illumine the world with a history of "the mental improvement of the horse and cow," which are well known to have been improved physically, but which have instinctively depreciated by civilization. There is not a wild pony in the Shetland Isles that is not *mentally*, far superior to the most carefully cultivated blood-steed in England.

The theory of Prof. Agassiz simply is, that man is part of the *fauna* of a country; that is, he belongs to the animals of a country, as a specific race, and that every fauna has a peculiar man race as part of it. If it does not mean this, his paper is mere verbiage. Well then, he admits there are various fauna on the continent of America, and yet coincides with Dr. Morton's views that there are only two races of men. Does he not thus contradict his own theory and confute himself? Certainly he does.

His theory in some respects is also very confused, for while he locates a peculiar fauna in the Arctic regions and confines them within certain limits bounded by degrees of temperature; and while he places the Esquimaux in America and the Lapps of Europe as the man part of the Arctic fauna, he leaps over all influences of climate and temperature in relation to the Indian race of our continent, which is allowed to extend from Canada to Cape Horn. So while he theorizes on a human fauna connected with the temperature of climate in one case, he contradicts this theory in the other case. If there is anything in his theory of human fauna, there should be an existing relationship between the races of men and the peculiar races of animals with which Prof. Agassiz classifies them; but no such relationship is pointed out by him; he has not said a word about this, excepting that the bear of Europe is brown, while the American bear is black, and from this we may be led to infer that the relationship of the American bear and the Indian exists in their greater darkness of skin than that of the European bear and men. He might also have added, "there are black and brown foxes in Norway belonging to the same species," as Mr. Loyd concludes, in his more recent investigations on the subject.

By the very animals which he presents in his map as belonging to the temperate regions of Europe and America, if his theory of human fauna is worth a straw, races like to those which inhabit Europe ought to have been found on our continent, when it was discovered. The fauna of Canada is very like that of semi-Northern Europe—Scotland and Norway. The elk, deer, bear, and beaver, are natives of certain parts of both continents, and if there were any harmony in the theory, no better test can be found than this. Yet how different is the Mohawk Indian from the Celt of Scotland, or the Scandinavian of old Norway. There is no harmony in his theory; it is contradicted at every step by the very facts which he has presented himself.

### Patent Law Case in England.

India Rubber.—As we have asserted more than once, this is a substance which from its very nature proves to be as tough and elastic for lawyers, as for railroad car springs, overshoes, and hand-balls. This has been proven by the numerous interminable and undeterminable cases which have come before our Courts. Parties interested in india rubber in Old England, supposing perhaps that Uncle John's lawyers and juries possessed more active organs of legal digestion than ours, carried the subject before Lord Chief Baron, at Westminster, on the 26th, 27th, and 28th days of June last, in hopes of settling the matter there; but the india rubber shoe proved as indigestible to an English jury, as an American one.

The action was brought by T. Hancock against R. Ross, for an infringement of the plaintiff's patent, dated 21st March, 1843, the invention being stated to consist of three parts. 1st, A combination of india rubber and silicate of magnesia (French chalk). 2nd, A combination of india rubber and asphaltum. 3rd, A combination of india rubber with sulphur, and the application of heat at a high temperature, producing the effect well known by the name of "vulcanization." The alleged infringement of this patent was the sale of American india rubber shoes by the defendant, who set up two points of defence. 1st, The patent was invalid, because the improvement described therein was not new, the plaintiff not being the true and first inventor. 2nd, The defendant had not infringed. Mr. Hancock, on being examined, admitted that he had invented the combination of india rubber with sulphur at a high temperature, but not until he was led to make the experiments from seeing some specimens of vulcanized india rubber manufactured in America, by Goodyear, whose agent had shown them to McIntosh & Co,, of London, for the purpose of inducing them to purchase the invention. Mr. Goodyear—our countryman, being in London, was produced as a witness by the defence, who said that he rendered india rubber first permanently elastic in 1842, the substances which he employed being india rubber, sulphur and white lead, (carbonate) which was much different from plaintiff's process, who used an oxyd of lead instead of the carbonate. It was also proved that Mr. Goodyear's agent, (Mr. Moulton) exhibited samples of india rubber to the plaintiff's partners in 1842, and there was some understanding between them for the sale of the invention, and that some goods were ordered from America, which they received some time before the enrollment of Hancock's specification. It was therefore suggested on the part of the defendant that the plaintiff had obtained a knowledge of the invention unfairly, and even after the date of his patent. This is also our opinion, and we believe, that it was the American goods examined by the plaintiff, which (if he was anything of a chemist at all) he could easily discover, contained sulphur. He is therefore neither in a moral nor scientific sense, a true and first inventor.

The jury on the case, after being out a number of hours, came into court and stated they could not agree, and that there was no prospect of their agreeing. They were then discharged, and so the case still stands out tough and strong, "vulcanized india rubber for eevr."

### Reaper Patent Case.

At Cooperstown, N. Y., on the 24th ult., Judge Nelson, of the U. S. Circuit Court, granted an injunction, on the petition of Howard and others, to stop Forbush from using and vending the Forbush Mowing Machine. This is the substance of the case as represented to us in this city. The injunction, we presume, is provisional, but of its exact nature we have not yet received information.

### The Smithsonian Institute.

There appears to be some trouble in this Institution relative to the Library, between the Secretary, Prof. Henry, and the Librarian, Prof. Jewett—who has been dismissed. As we understand the case, the Librarian contended for a large expenditure for books, and the establishment of a great library, while the Secretary contended that it could not have been the wish of Smithson to found a great library at Washington, as that would not be according to his Will, "increasing and diffusing knowledge among men." Prof. Henry, we believe, is right, and has acted according to the expressed Will of Smithson. It is our opinion that this Institution has not, so far, actively carried out the objects for which Smithson donated his money, to found an institution that would be a Pharos of science to the world, but we have hopes that it will yet redeem lost time. Of the works which have been published under its patronage, few of them are of the least practical use to the mass of mankind, but we expect a reform in this respect.

A course of free lectures has been regularly delivered in the Institution, and so far, this is very well, but it would be more to the fame of the chief officers, and more in accordance with the wish of Smithson, if those lectures were published in a cheap form for dissemination among the people. Thus for example, let Prof. Henry engage eminent men, such as Prof. Silliman, Rogers, Agassiz, &c., to deliver annually one, two, or more lectures each, on certain scientific subjects, with the understanding that the lectures were also to be furnished in manuscript for publication in pamphlet form, to be sold at a moderate price. This plan, for a certainty, would be "diffusing useful knowledge among men," in a manner far surpassing any institution in the world.

No charge of mismanagement has ever been made against the Secretary, and none for malappropriation, or lavish expenditure of the funds. In fact, if there is any complaint to be made on this head, it must be for a too rigid economy, and this is certainly a rare virtue these days, among public men.

### Steam Carriages for Common Roads.

Under this head there appeared in the "N. Y. Tribune" of the 27th a communication from the author of a ricketty steam carriage, who hangs on to an obsolete idea like a bull dog to a *bare* bone. There is scarcely a single statement in that letter worthy of the least credit. It is there stated "that Gordon never built a carriage, nor designed one that ever was built." We can show any *respectable* person the account of a steam carriage built for common roads designed by David Gordon. The printed account says:—"A carriage was constructed on this plan, (Gordon's) and some experiments made with it."

The writer in the Tribune says we told him he would find an account of the carriages that run on the Glasgow and Paisley Road in Luke Herbert's Encyclopedia. We never told him any such thing. We simply told him that we believed he would find some account of Gordon's Steam Carriage in "Hebert's Work," and any person who can read will find it there.

### The Cooper Institute.

This Institution, the foundation stone of which was laid with so much display more than a year ago, and which has been standing ever since in a state of *statu quo*, we understand, will soon be carried forward with vigor towards completion. An injunction restraining the erection of the structure was granted on account of trespass on the street, but this restraint, we believe has been removed. We really hope to see this Institution finished at an early day, and all the promises made respecting its benefits carried out to the letter. We hope it will not turn out to be like the "New York Washington Monument." The foundation stone of that "Pile" was laid, and one of the grandest processions ever witnessed in our city graced the occasion, but that was the last of it.

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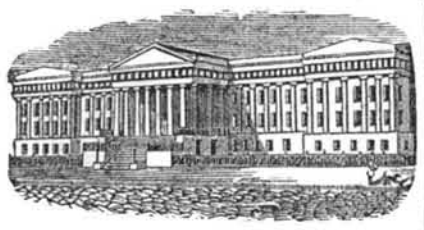

[Reported Officially for the Scientific American.]

## LIST OF PATENT CLAIMS

### Issued from the United States Patent Office

FOR THE WEEK ENDING JULY 25, 1854.

MAIL BAG LABELS—Solomon Andrews, of Perth Amboy, N. Y.: I disclaim a hinge or any other adaptation to motion of the two parts of the label upon each other. Also the stamping of the two sides of the strap, as in ordinary mail bags.

I claim a label formed of two distinct parts, and riveted or firmly secured together, having the superscription on the outside and open at both ends, to admit a chain or strap to pass through it, as specified.

CUTTING ROUND TENONS—T. R. and George Bailey, of Lockport, N. Y.: We do not claim the cutter, G, nor the cutter F. But we claim the arrangement of the tube, exterior to and concentric with the cutting tube, so that the rail may be steadied during the operation of the machine, and the tenon so cut that its axis shall be coincident with the axis of the rail.

SECURING HELVES IN AXES, &C.—H. N. and J. C. Bill, of Willimantic, Conn.: We do not claim securing the helve in an axe by means of a wedge simply.

But we claim the peculiar shape of the eye of the axe in combination with the helve and wedge, as described.

NUTMEG GRATERS—Wm. Bradley, of Lynn, Mass.: claim the combination of the box or holder and its pressure spring with the rasping surface of the grater when the whole are applied and made to operate together, as specified.

LOOMS—E. W. Brown, of Fall River, Mass.: I do not claim the employment of two ratchet wheels upon the same shaft, with teeth in reverse directions, and which are actuated by separate and independent pawls driven by independent machinery.

But I claim the combination of a single pattern chain and the double acting pawls, as set forth, with the two ratchet wheels upon the cam shaft, for the purpose of driving the latter in either direction, as may be required, the whole operating as described.

Second, the combination of the ratchet wheels upon the cam shaft, the gearing, and the cam, the whole arranged as set forth.

BOTTLES—Henry T. Brown, of Brooklyn, N. Y., and Reinhold Boeklen, of Jersey City, N. J.: We do not claim constructing the bottle with a cork aperture or passage across or through the neck, so that the cork when inserted is only exposed to lateral pressure of the gas within the bottle, as bottles have before been constructed with a transverse passage through the neck at right angles, or thereabouts thereto.

But we claim constructing the bottle with an oblique cork or stopper passage, arranged in relation to the mouth and neck of the bottle, as set forth, that is, extending from the mouth downwards through the neck, in such manner that while the lateral pressure on the cork is preserved, the cork passage in no way interferes with or obstructs the straight or direct communication through the mouth and neck of the bottle into the interior thereof, as set forth.

LAMP FASTENINGS—L. B. Carpenter, of Buffalo, N. Y.: I claim the combination of the spring with the levers, having the pins or studs, which work through the holes into a slot or groove constructed and arranged as set forth.

COTTON GINS—L. S. Chichester, of Brooklyn, N. Y.: I claim the mode of operation of the vibrating curved surfaces, as described, for forcing seed out of the pods of cotton, as set forth.

I also claim, in combination making the said vibrating curved surfaces with recesses to form what is herein termed the upper griping edges to act upon the pods near to the seeds towards the end of the operation.

I also claim, in combination with the vibrating curved surfaces, the employment of rollers or their equivalents acting intermittently, as described.

PLOWS—T. F. Chapin, of Walpole, N. H.: I do not claim the employment or use of an adjustable beam, irrespective of the mode of attachment, as shown, for adjustable beams have been previously used.

Neither do I claim the use of the rack and pinion separately, irrespective of its peculiar connection to the beam.

I claim, first, attaching the beam to the mold board by a pivot, for the purpose of allowing the outer end of said beam to be raised or depressed, and thereby give the share a greater tendency to enter the earth and cause the furrows to be of the desired depth.

Second, I claim the means, as described, for operating the beam, viz., the box or socket, having within it a rack and pinion, the rack being connected to the beam by a rod, these parts being constructed and arranged as set forth.

BOTTLES—William Clark, of New York City: I claim forming bottles with an eye at the top or upper part of the neck, said eye having a passage through it, at right angles, or not varying much therefrom, with the opening or passage of the bottle for the purpose of receiving the cork, and preventing the cork from being expelled from the bottle by the force of the gases generated by the fermentation or effervescence of the liquid within.

SPRING AND SPRING CATCH, FOR CLOSING DOORS—John Clark, of North Hadley, Mass.: I claim the arrangement of the several parts, on the casing and on the door, as set forth, when the whole is constructed and made to produce the result, as described.

LUBRICATING COMPOUND—G. A. Colehamer, of Reading, Pa.: I claim the combination of 9-16 of a gallon of raw linseed oil, 7-16 of a gallon of rosin oil, and 12 dwts. of gum camphor for a lubricator.

OMNIBUS STEP PROTECTOR—Thos. Coles, of New York City: I claim, first, constructing an appliance or covering for the steps of the omnibus, as described, made of wood, sheet iron, copper or other material, corresponding in width with the door, and the sides falling over the ends of the steps, secured to and moving with the door.

Second, to complete and carry out the design of the invention, forming metallic triangular plates to be well secured to spring, bar, or otherwise shielding the ends of the hind spring, as set forth, the whole combined affording the desired relief to stage men.

CULTIVATOR—Chas. H. Dana, of West Lebanon, N. H.: I claim constructing each of the two outermost teeth with a horizontal blade projecting more or less outwardly from its shank and with an upright portion bent up at the extremity of said outwardly projecting blade, the edge of said upright portion being parallel or thereabout, with the longitudinal direction of the cultivator, for the purpose of cutting up the weeds close to the rows of corn or other plants, and at the same time drawing the weeds away from the rows, and also serving to guide the attendant in directing the cultivator, so as not to injure the plants by too near an approach to them, as described.

STRIKING PART OF STEEPLE CLOCKS—George Deuble, of Canton, Ohio: I claim attaching to the beam or lever which is operated by a pin on the wheel, provided with a detent for arresting the fly, the knee, or its equivalent, to act in conjunction with the pins in the count wheel, as an inclined plane to raise the lever, till its detents take effect, and to escape from the pins when the lever is still further raised by the pin on the wheel, as described.

FINISHING DIES IN MACHINES FOR MAKING RINGS FROM SHEET METAL—C. W. Dickinson, of Newark, N. J.: I claim forming the lower finishing die in two parts, of which one part is capable of being raised, as described, to expel the finished ring or link.

LATHE CHUCK—L. A. Dole, of Salem, Ohio: I am aware that the self-centering lathe chuck is not new, and wish it to be distinctly understood, that I do not claim the same independent of its peculiar arrangement and combination.

I claim the manner described of combining and arranging the scroll screw, holding jaws, screw or mandrel, cutter, adjustable nut, gauge plate, sliding catches, and notched or grooved barrel, or their equivalents, for the purpose of constituting a machine which is capable of boring the hub entirely through in a true and perfect manner, and also of being adjusted and set so as to cut a shoulder of the required depth, and to enter the hub the proper distance, and then of being adjusted as the operation is proceeded with, so as to square up the shoulder in a perfect manner, as described.

DRIVING AND STRAINING SAWS—James and John Fishwick, of Lexington, Ky.; We do not claim the straining of saws by steam or other elastic fluid, neither do we claim the direct attachment of the saw or its gate to the piston rods.

But we claim driving and straining the saw by two steam cylinders and pistons of unequal size, the larger being of sufficient size to drive the saw during its downward or cutting movement, and only receiving steam during such movement, and the smaller which always contains steam being of sufficient size to keep the saw strained while cutting, and to raise it and the larger piston, as described.

READING TABLES—Chas. Folsom, of Cambridge, Mass.: I claim the combination of the table, with the levers, as constructed, and operating as set forth.

MOWING MACHINE—Alanson Gale, of Poughkeepsie, N. Y.; I do not claim the invention of wheels, shafts, or any of the parts of themselves, but only the combination of them for the purpose and in the manner described, so as to lift the cutter bar clear of the ground by backing the team and bringing it down to its place by drawing forward.

I claim the wheel, as described, when so constructed and combined with the frame of a mowing machine, as to support the cutter bar clear of the ground when pushed back, and lower it to its place when drawn forward.

CRUSHING AND PULVERIZING ORES, &C.—Samuel Gardiner, Jr., of New York City: I disclaim the employment of stampers having a rotary action, when such rotary action is not sufficient to produce pulverization of the quartz or ore, but only to change the position to equalize the working surface.

But I claim the employment of one or more stampers having such a jumping motion as to leave them for some time in contact with the quartz or ore after every descent, and such a rotary motion, that while they remain in contact with it between one descent and their next ascent, their rotary action will be sufficient to pulverize to a proper degree, that which was prepared by the breaking or crushing action of their descent, as described.

VEHICLES—A. J. Gibson, of Clinton, Mass.: I claim giving to the forward axle a bent form in combination with arch springs connected and bearing from axle to axle, for the purpose and in the manner and form set forth.

BUTTER WORKERS—Ezekiel Gore, of Bennington, Vt.: I claim a machine provided with an endless revolving sack, and having its parts arranged and operating as described, for working, cleaning, and seasoning butter, as set forth.

GRATES—G. W. Griswold, of Carbondale, Pa.: I claim the hinging of the shakers in front of the grate so as to give the ends thereof next the back the greatest extent of motion, and this in combination with the stop which prevents the shakers from rising above the bottom of the grate, as described.

MILL STONE DRESS—E. P. Gaines, of Melrose, Texas: I claim the manner of laying off the dress of mill stones with four curved master furrows, by which I gain a draught equal to one-fourth the circumference, in connection with secondary furrows laid according to the directions before given, for the purpose of more effectually grinding grain, increasing the quantity ground with a given power, producing a better yield of superfine flour, and avoiding both the choking and underheating of the stones, as set forth.

WATER WHEEL—B. T. Hall, of Seneca Falls, N. Y.: I claim, first, the combination of the beveled or inclined curb, constructed as described, with the central discharge water wheel.

Second, the eccentric discharging orifice or its equivalent, as set forth.

BANK LOCKS—A. C. Harig and D. C. Stoy, of Louisville, Ky.: We claim the self-adjusting guard, arranged and operating in the usher in such a manner that the introduction of powder, or picking instruments, into the lock through the key hole is effectually prevented in the manner specified.

We also claim the arrangement and combination of the cam, which operates the bolt, the dog, and the eccentric notch, in the usher, in such a manner that while the key or any instrument substituted therefor, may be operating upon the tumblers the said cam shall be intercepted by the dog, so that it cannot be brought into contact with the bolt, till said key or instrument, shall have moved the tumblers as far as it is capable: for the purpose of preventing the act of feeling the positions of the tumblers, while the key or substituted instrument may be moving them, as described.

WINDOWS—M. A. Heath, of Providence, R. I.: I claim inserting in either side of the sash a flexible expanding strip, formed in lengths jointed or otherwise pliantly secured together, so that the sash is made to slide smoothly in the frame, the several lengths of the strip expanding and contracting to accommodate themselves to inequalities in the grooves in which they slide, for the purpose of forming a close joint between the sash and the frame, as described.

SHIRT COLLARS—Walter Hunt, of New York City: I do not claim making collars of paper; neither do I claim the peculiar fabric which I make use of, nor the enamelling and polishing such fabric; nor making paper or cloth water-proof by means of varnish.

But I claim as a new article of manufacture, the described shirt collar made of the fabric set forth, and polished and varnished, as specified.

STEAM BOILERS—Henry Jackson, of Elizabeth, Ohio: I do not claim constructing a boiler of tubes simply.

But I claim, first, the arrangement of the vertical water tubes and spiral flues in relation to the furnace, as described.

Second, the arrangement of the vertical water tubes surrounded by the non-conducting material, and the upper and lower horizontal tubes in connection with the heating surfaces, for the purpose of returning the water from the upper to the lower tube.

SECURING ENDS OF WIRES IN FENCE POSTS—W. G. Lavers, of New York City: I claim the method of securing the horizontal wires to the posts, as described, viz., by having slots made in the posts, in pairs, and the ends of the wires passed through the slots of the several pairs, and bent in the form of hooks, the lower ends of the hooks passing through the lower slots of the several pairs, and placed either obliquely or vertically, as set forth.

CULTIVATOR—Griffith Lichtenthaler, of Limestonville, Pa.: I claim the method described, of attaching the shares to the beams, viz., having metal strips perforated with holes, secured to the under sides of the beams, and sockets formed of two lips made at the upper ends of the shares, and perforated with holes, in which holes and in those in the plates, wooden pins are passed, securing the shares to the beams, as set forth.

EYLET MACHINES—H. L. Lipman, of Philadelphia, Pa.: I claim so forming the die and counter die, or follower and anvil block of an eyelet machine, by concave grooves, channels, or their equivalents, as that the eyelets may be riveted or clinched on both sides by a single operation, and without turning them over, as described.

COUPLING FOR CARRIAGES—N. B. Livingston, of Portland, Ind.: I claim coupling the front axle, to the reach, and also the whiffletrees of a wagon or carriage to the tongue by means of the circular collar or eye-piece, and grooved sectional circle plate, constructed and arranged and operating as described.

DITCHING PLOWS—John Lyon, of Harrisburgh, Iowa: I claim the arrangement of the several parts, as described, for the purpose of constituting a machine which is capable of cutting any depth of furrow, and of taking up the loose dirt or soil out of said furrow or ditch, as fast as it is formed, and convey and discharge it at right angles to the furrow or ditch, in a continuous stream, for the purpose of forming roads and foundations for fences, and for other purposes, as described.

SECURING STAPLES TO WALLS—Jordan L. Mott, of Mott Haven, N. Y.: I do not claim the union of cast and wrought iron, by running the molten iron on to the wrought iron, as this has long since been known and used.

But I claim forming the anchor of a block cast on to the shank of a wrought-iron staple or eye, and provided with a thin wing, having flanges or ribs, all cast and forming one substance with the block, as specified, whereby the cast iron part shall hold the shank firmly, and at the same time become an integral part of the mason work, and be firmly held therein by the superincumbent weight, as described.

SODA WATER FOUNTAIN—J. R. Nichols, of Haverhill, Mass.: I do not claim a simple combination of reservoir and generator in portable form.

But I claim, first, the peculiar arrangement of reservoir, generator, and purifier, compactly combined as described.

Second, I claim the arrangement described for gradually throwing down the powdered chalk or soda from the superior cylinder, and for closing up the same by drawing up the rod connected with the thumb screw.

STOPPERING MINERAL WATER BOTTLES—Alphonse Quantin, of Philadelphia, Pa.: I claim the compound stopper composed of the metallic core, the cork zone, and the india rubber spring, constructed and operating as described.

STOVE REGULATORS—Washbune Race, (assignor to H. C. Silsby and Washbune Race,) of Seneca Falls, N. Y.: I claim adjusting the stove regulator by attaching the nut and screw used for that purpose, at the top end of the same, and at the top of the stove, as set forth.

BUTTER WORKERS—Elihu Ring, of Macklenburgh, N. Y.: I claim arranging the block to traverse as described, in combination with the spring or its equivalent, to force it forward in the operation of working butter, as described.

PLATFORM SCALES—Elnathan Sampson, of Windsor, Vt.: I claim the combination of the short longitudinally vibrating levers, with the laterally vibrating longitudinal lever, by which I am enabled to construct scales of the largest size without using trussed levers, as set forth.

I also claim the combination of the platform with the beam actuating double lever, or its equivalent, through the medium of the longitudinally vibrating levers and the laterally vibrating levers, as set forth.

I also claim inserting a doubly concave intermediate block within the opening of each stirrup, between the sharp edge of the cross bar of the stirrup and the edge of the lever pivot, at right angles therewith, for the purpose of enabling the platform to swing freely in a lateral and a longitudinal direction, without injury to said sharp bearing edges, as set forth.

SHEET METAL CANDLESTICKS—J. W. Smith, of Poultney, Vt.: I claim forming the base of a sheet metal candlestick of two sheets of different metals which are of such proportions respectively that the upper sheet is too thin to support the candlestick by itself, and has the requisite stiffness and strength imparted to its central portion by fitting and firmly uniting thereto the under sheet, as set forth.

CORN COB CUTTER—Isaac Straub, of Cincinnati, Ohio: I claim the combination of a rotating burr provided with a blade or cutting edge on the top, and with a toothed or roughened surface on its perimeter, and a stationary shell also provided with a cutting edge, said cutting edges operating together shear fashion, for slicing off and reducing ears of corn preparatory to their undergoing a further reducing or grinding operation, the whole being combined as set forth.

DITCHING SPADE—David Stouder, of New Burlington, Ind.: I do not claim the bottom and side cutting edges for ditching spades, nor of narrow steel ribs, as a means of handling stickey muck, &c., with less adhesion.

I claim the combination of the obtuse angled bottom cutter with the side cutters sloping upwards, the light steel ribs, the foot treads on the single or divided handle and the claw hook for deep trenching, as set forth.

HORSE SHOES—William H. Towers, of Philadelphia, Pa.: I claim the combination of the steel or other elastic springs, having corks formed on their flexible ends, and capable of being removed and attached with facility and despatch, with the main body of the shoe, as set forth

INDICATING TUBES FOR ASCERTAINING DRAUGHT OF AND FOR TRIMMING VESSELS—John E. Vansant, of Louisville, Ky.: I am aware that the bow, stern, and rudder stocks of vessels have been marked to indicate the draught of water, and that tubes with indicators have been used near the bow and stern connected therewith, but this I do not claim, as such tubes and indicators will not fully and clearly give the entire condition of the draught at all points in the class of vessels to which I apply my tubes and indicators.

But I claim the arrangement of tubes and indicators, in the bow, stern, and quarters or wings of light draught vessels, for the purpose of keeping her trimmed by indicating the true draught throughout her whole length and breadth and preventing the hogging or straining of the hull as described.

PADDLE WHEELS—Abraham Van Antwerp, of Albany, N. Y.: I claim the construction and use upon steamboat paddle wheels of disconnected floats of a cima-recta and cima-reversa form as shown, the same being placed upon arms set obliquely upon the shaft and being so formed and placed that the end of the float enters and leaves the water on a line parallel with the direction of the vessel whereby the beating down of the water by the float when entering and the raising up of water when leaving, as in the ordinary transverse paddle, is prevented.

SEED PLANTERS—Charles A. Wakefield, of Plainfield, Mass.: I do not claim as new in hand seed planters the mere use or arrangement of a seed hopper or box, delivery slide and elastic or opening and closing receiving chamber with ejecting plunger operating therein or through, as such arrangements I am aware have before been used, but in such arrangements the receiving chamber has formed a depositing tube entering the ground with the plunger and served to form the hole or recess in the earth for the reception of the seed.

But I claim so arranging and operating the plunger in connection with the receiving tube or chamber and its delivery slide or the equivalent thereof, that the plunger ejecting the corn deposited in the receiving chamber, is made to imbed the corn from the surface of the earth to its required depth obliquely into the ground, while the receiving tube or chamber resting by a front stop plate on or above the ground is made to open and close clear of all surrounding dirt, and the sides of the said chamber made to act as scrapers above the recess to clear the plunger of adhering soil and cover the seed therewith throughout the entire withdrawal of the plunger substantially as specified, whereby the receiving tube or chamber is prevented clogging with dirt at its opening sides the width of the opening made in the earth for the reception of the seed is diminished and the corn covered with more certainty, as set forth.

I further claim the method described of operating the planter by the hand, at the side, in such a manner that the same force or pressure applied to working the plunger up and down gives to the planter, automatically as it were, one and the same obliquity of stroke, in a backwardly direction downwards or in a forwardly direction upwards throughout its several operations, both on entering and leaving the ground by means of the obliquely set handle on the rear side of the plunger or other equivalent arrangement of the handle, producing the same action substantially as specified, and whereby the planter may be used with greater facility and expedition and the recess formed for the planting of the corn be made with certainty of the necessary obliquity, without involving any delay in adjusting the direction or movement of the plunger, to insure the earth on the overhanging side of the said recess falling in to cover the corn, as set forth.

POLISHING WHEELS—Benj. Webb, of Unadilla Forks, N. Y.: I claim the forming of an elastic polishing wheel to be used for polishing and grinding by the use of a series of springs placed under sections of the surface moving vertically from the center and independent of each other as set forth.

FITTING HEADS IN BOXES—Chas. Williams, of Fallsburg, Va.: I am aware that grooves are cut with the grain of the wood for making boxes, but I do not know or believe that they have been cut across the grain for that purpose.

I claim the angular form of the three pieces of heading which allows their being put in securely, and often removed without drawing a nail or moving a hoop.

PORTABLE BEDSTEADS—Simon Willard, of Cincinnati, Ohio: I claim my improved bedstead, constructed in the manner described, viz., of sheet metal side and end pieces, which are bent at their ends so as to form sockets for the reception of the sustaining and uniting posts and provided with inward flanges at their lower edges for the reception of the hinged bottom plate, which serves at the same time to support the bed and to keep the bedstead firm and in proper shape as set forth.

APPARATUS FOR COOKING AND WARMING—Daniel Willis, of New York City: I claim the arrangement, construction, and united operation of the several devices forming the cooking and warming apparatus shown and set forth.

HEDGE TRIMMER—Leonard Woods, of Quincy, Ill.: I do not claim the invention of knives revolving on a horizontal shaft as such have been used in machines for topping cotton.

But I claim, first, The arrangement of cutters affixed on the face of a wheel on an inclined shaft, revolving so as to cut upwards as the carriage is advanced parallel to the sides of the hedge, in the manner described.

Second, I claim the gauge in combination with the horizontally revolving knives both being adjustable to the required height for topping the hedge, as described.

Third, I claim lifting the lower branches of the hedge to bring them within the range of action of the revolving cutters, by means of the bent bar or its equivalent, thereby obviating the necessity of having the cutter wheel of large diameter and allowing the cutters to be carried so high as to be free from all danger of striking the ground, as set forth.

CIDER MILLS—Daniel Ziegler, of Lewistown, Pa.: I do not claim as new the mere arrangement of the rollers, nor yet one of the rollers running at a different velocity to the others, nor yet again merely of itself varying the size of the teeth on the rollers.

But I claim the arrangement shown and described of the spur teeth on the rollers in rows round the periphery of regular sizes in each row, but the teeth in the one row being larger than the teeth in the adjoining row, and the smaller teeth of the lower roller being arranged opposite the larger teeth of the upper rollers, and all three rollers running at different velocities, as set forth.

THIMBLES FOR STOVE PIPES—Daniel Wilson, (assignor to William F. Pratt, George W. Bosworth, and H. M. Bird,) of Milford, N. H.: I claim the combination of the rings, the thimble, the sliding plate, and the cover with the ventilators constructed and operated as set forth.

MORTISING MACHINE—Birdsill Holly, (assignor to Silsby, Race & Holly,) of Seneca Falls, N. Y.: I claim the mode of working the chisel as set forth, the same consisting in the re-entering belt or its equivalent in combination with the spring and hand or foot straps and in combination therewith I claim the tongue stray with its spring for the purpose of keeping the belt loose upon the driving shaft.

I claim the mode of reversing the chisel, or of keeping it in and out of gear, the same consisting in the combination of the hinged bar, the spring, the notched ring, the treddle or its equivalent, and the rod connected with the gear wheel on the pulley frame.

WORKING AND STOPPERING CHAIN CABLES.—Thomas Brown, of London, England. Patented in England, April 20, 1847: I claim the arrangement of the capstan, the removable rollers, and the sockets for said rollers, in such a manner and having such relations to the hawse holes, chain locker, deck pipes, and under lifting stoppers that a chain cable can be continuously hove in by means of said capstan and rollers, or be directly run out of the lockers without any previous overhauling, as set forth.

I also claim the arrangement of the described under-lifting bow stoppers and after stoppers, by which more cable can be gradually and controlably given to a vessel whilst riding heavily at anchor, as set forth.

### RE-ISSUE.

SEED PLANTERS—Chas. Randall, of Palmyra, Geo. Patent originally dated Nov. 2, 1852; I claim the revolving cylindrical hopper composed of two hollow buckets or disks, arranged a suitable distance apart to form a central discharge passage on a horizontal revolving shaft for the purpose of holding and agitating the seed and discharging it in the center of the furrow in a straight line, as described.

NOTE.—Here we have another large list of patents, an evidence of the industry and patience of the Examiners—especially at this time of the year. Seventeen in the list were prepared at the "Scientific American Patent Agency." We still consult with inventors and attend constantly to the preparation of applications for patents in this and all foreign countries.

### Another Large Patent List.

The Patent Office is peculiarly efficient at the present time, and is turning out an unusually large amount of business. We are glad to observe this, as it inspires inventors with increased confidence in its management. Seventeen of our clients will notice their names among the list of successful applicants, and now that they have their Letters Patent in hand we hope they will be industrious in bringing them to the knowledge of the public.

### Irving Steam Boiler.

From an advertisement in another column we observe that the Irving Steam Boiler Co. have removed their office to 347 Broadway. Being the first to direct public attention to this economical invention, we are now glad to learn that it is making its way rapidly into public favor. We were present at some experiments made upon it some time ago by a corps of engineers, the results of which, with other interesting matter may be found in a pamphlet at the Company's office.

We are informed that it is about to be adapted to locomotive purposes in the West, a region which may open a wide field for its advantageous use. Those who want cheap steam, in the growing scarcity and advancing price of fuel, would do well to give this boiler a serious examination.

One pound of English lavender produces more essential oil than four pounds of the French kind.

No less than 20,000 lbs. of tube roses are used every year in Grasse, France, for perfume waters.

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## TO CORRESPONDENTS.

J. A., of Mass.—We wrote you on the 7th of July.—Enquire at the Post Office and you will be likely to find a letter. We stated that your condenser did not contain anything new that we could discover.

S. S., of N. Y.—There seems to be novelty in your lantern, but what are its advantages? It appears to us that it is complicated without necessity. What do you gain by a reflector when the globe can be made to answer the same purpose.

D. H., of N. C.—If you purchase the right of an invention for one or more counties, it is reasonable to suppose that the right to make, use, and sell. is confined necessarily to the territory purchased. You have no right out of your own territory.

G. E., of N. Y.—We discover nothing in your mowing machine which approaches novelty. To describe all the various machines you inquire about, would be a greater task than we should like to undertake this hot weather. In our next volume we shall give you much valuable information on reapers of nearly every manufacture.

J. S. D., of ——.—We do not perceive any chance for a patent on your boiler; it is quite common to give space under flues, so as to prevent incrustation and blocks of woods extending the entire length of the boilers, having a narrow space at the bottom, so as to allow the water in its ebullitions to pass rapidly, and thus prevent the collection of sediment.

C. V. A., of N. Y.—A rotary churn having curved beaters is an old device, and cannot be secured by patent.

E. D. L., Jr., of Mass.—The theory of the crank, as laid down by Bourne, is generally regarded by engineers as correct. His work on the Engine is a good one—we do not know of a better.

H. W., of Pa.—A funnel having a groove in the nozzel is an old, but very useful contrivance.

P. W., of N. Y.—We would recommend you to use Ball's patent pipe for conveying water. Address, Joseph Battin, Jersey City, N. J.

M. M. G., of Ky.—We do not think there is any chance for a patent on your method of making bank bills proof against counterfeiters. It may be very good but not patentable.

J. B., of Pa.—There is no patent on the suction blast of fans, that we ever heard of. Modifications of the fan blower have been patented but not the suction blast itself.

J. N. McF., of Ind.—If you wish to file a caveat, forward us a sketch and description of your improvement and we will prepare the papers properly. You should give a general idea of what you regard as your invention, as this will aid us in arriving at the point with the least trouble. The caveat fee is $20, and we charge from $10 upwards, for preparing and attending to the case.

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**Money received on account of Patent Office business** for the week ending Saturday, July 29:—

W. W., of N. Y., $40; W. D. T., of L. I., $250; B. & W of N. Y., $40; S. H. G., of Ct., $25; J. L., of Ky., $25; H. & K., of N. Y., $30; W. G. Jr., of N. Y., $35; H. S., of Tex., $6; J. R. T., of Ill., $20; E. W. R., of N. J., $30; F. & A., of O., $27; J. P., of Ky., $50; B. H., of N. Y., $100; L. A. H., of Ky., $25; D. B, N., of O., $30; H. B., of N. Y., $30; M. J. S., of N. Y., $30; J. C., of O., $30 J. D., of N. Y., $25; R. K., of Mass., $40.

Specifications and drawings belonging to parties with the following initials have been forwarded to the Patent Office during the week ending Saturday, July 29:—

J. A. G., of Mich.; J. L., of Ky.; S. H. G., of Ct.; N. C. S., of Ct.; J. D., of N. Y.; J. R. T., of Ill.; F. & A., of O.; W. C., of Mass.; W. G. Jr., of N. Y.; L. A, H., of Ky.; F. B. H., of Ind; R. K., of Mass.

# ADVERTISEMENTS.

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**THE GWYNNE PUMP**—Is admitted to be THE Pump for all uses requiring from 25 to 100,000 gallons per minute. Look at it in operation; read the descriptive pamphlet and be convinced that it is adapted to any situation, unlimited in power, certain in action, permanent in use, low in cost, and must supersede all others. UNION POWER CO. OF U. S., 33 Broadway, N. Y. Reference to all having them in use; among them the following:—Capt. Junius S. Lewis, 233 West 19th st, N. Y. City; Capt. Benj. Bluvett Miner, Belleville, N. J.; Messrs. Owens & Huriburt paper manufacturers, South Lee, Mass. List to be continued in subsequent numbers. 1

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**LAWRENCE SCIENTIFIC SCHOOL**—Harvard University.—The next Term of this Institution will open on the 31st day of August, 1854, and continue 20 weeks. Instruction by Recitations, Lectures, and Practical Exercises, according to the nature of the study, will be given in Anatomy by Messrs. Bond, Botany by Prof. Gray; Chemistry, Analytical and Practical, by Prof, Horsford; Comparative Anatomy and Physiology by Prof. Wyman; Engineering by Prof. Eustis; Mathematics by Prof. Pierce; Mineralogy by Prof. Cooke; Physics, by Prof. Lovering; Zoology and Geology by Prof. Agassiz. For further information concerning the School application may be made to Prof. E. N. Horsford, Dean of the Faculty.
Cambridge, Mass., July, 1854. 47 4*

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**VALUABLE PRACTICAL RECEIPTS**—NOW ready, and will be sent to any address in the United States for one gold dollar, Address, post-paid, A. ADAMS, Clearspring, Md. 47 2*

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**PATENT RIGHT FOR SALE**—State Rights in a new and improved machine, designed for ship and boat spikes, patented July, 4th, 1854. This machine is entirely new, and comprises a new and patented method of pointing, whereby a great amount of labor in repairing is saved. Application should be made to F. HUMPHREY, Boonton, N. J. 47 3*

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**WM. MONTGOMERY & CO.** Machinists, Yonkers, Westchester, Co., New York, manufacture all kinds of Machinery and Machinists' Tools—Bolt Cutters and Drilling Machines of different sizes constantly on hand; Steam Engines from 5 to 100 horse power made to order. Particular attention paid to jobbing in all its branches. Pullies and shafting furnished at short notice. Address as above, 47 3eow*

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UNITED STATES PATENT OFFICE,
Washington, July 21, 1 54.

**ON THE PETITION** of Reuben Daniels, of Woodstock. Vt., praying for the extension of a patent granted to him on the 8th day of October, 1840, for an improvement in the "manufacture of cloth of various kinds by the employment of wood and silk, obtained by reducing worn-out woolen and silk goods into the fibrous state," for seven years from the expiration of said patent, which takes place on the 8th day of October, 1854.

It is ordered that the said petition be heard at the Patent Office on Monday the 25th of September next, at 12 o'clock, M.; and all persons are notified to appear and show cause, if any they have, why said petition ought not be granted.

Persons opposing the extension are required to file in the Patent Office their objections, specially set forth in writing, at least twenty days before the day of hearing; all testimony filed by either party to be used at the said hearing must be taken and transmitted in accordance with the rules of the office, which will be furnished on application.

The testimony in the case will be closed on the 15th of Sept.; depositions, and other papers relied upon as testimony, must be filed in the office on or before the morning of that day; the arguments, if any, within ten days thereafter.

Ordered, also, that this notice be published in the Union, Intelligencer, and Evening Star, Washington, D. C.; Pennsylvanian, Philadelphia, Pa.; Scientific American, New York, and Post, Boston, Massachusetts, once a week for three successive weeks previous to the 25th day of Sept. next, the day of hearing.

CHARLES MASON,
Commissioner of Patents.

P. S.—Editors of the above papers will please copy and send their bills to the Patent Office, with a paper containing this notice. 47 3

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UNITED STATES PATENT OFFICE,
Washington, July 21, 1854.

**ON THE PETITION** of Reuben Daniels, of Woodstock, Vermont, praying for the extension of a patent granted to him on the 10th day of October, 1840, for an improvement in "machine for reducing worn-out cloths and silks of various kinds to the fibrous state, so as to be capable of being manufactured into cloth," for seven years from the expiration of said patent, which takes place on the 10th day of October, 1854:

It is ordered that the said petition be heard at the Patent Office, on Monday, the 25th of September next, at 12 o'clock. M.; and all persons are notified to appear and show cause, if any they have, why said petition ought not to be granted.

Persons opposing the extension are required to file in the Patent Office their objections, specially set forth in writing, at least twenty-days before the day of hearing: all testimony filed by either party to be used at the said hearing must be taken and transmitted in accordance with the rules of the office, which will be furnished on application.

The testimony in the case will be closed on the 15th of September; depositions and other papers relied upon as testimony, must be in the office on or before the morning of that day, the arguments, if any, within ten days thereafter.

Ordered, also, that this notice be published in the Union, Intelligencer, and Evening Star, Washington, D. C.: Pennsylvanian, Philadelphia, Pa.: Scientific American, New York, and Post, Boston. Massachusetts, once a week for three successive weeks previous to the 25th of September next, the day of hearing.

CHARLES MASON,
Commissioner of Patents.

P. S.—Editors of the above papers will please copy, and send their bills to the Patent Office, with a paper con taining this notice. 47 3

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UNITED STATES PATENT OFFICE,
Washington, July 19, 1854.

**ON THE PETITION** of Ross Winans, of Baltimore, Md., praying for the extension of a patent granted to him on the 26th day of November, 1840, for an improvement in "the mode of regulating the waste steam in locomotive steam engines," for seven years from the expiration of said patent, which takes place on the twenty-sixth day of November, eighteen hundred and fifty-four.

It is ordered that the said petition be heard at the Patent Office on Monday, the 13th of Nov. next, at 12 o'clock, M.; and all persons are notified to appear and show cause, if any they have, why said petition ought not to be granted.

Persons opposing the extension are required to file in the Patent Office their objections, specially set forth in writing, at least twenty days before the day of hearing. All testimony filed by either party, to be used at the said hearing, must be taken and transmitted in accordance with the rules of the office, which will be furnished on application.

The testimony in the case will be closed on the 3rd of Nov.; depositions and other papers relied upon as testimony, must be filed in the office on or before the morning of that day; the argument, if any, within ten days thereafter.

Ordered, also, that this notice be published in the Union, Intelligencer, and Evening Star, Washington, D. C.; Pennsylvanian, Philadelphia, Pa.; Scientific American. New York; Post, Boston, Massachusetts, and Inquirer, Cincinnati, Ohio. once a week for three successive weeks previous to the 13th day of Nov. next, the day of hearing.

CHARLES MASON,
Commissioner of Patents.

P. S—Editors of the above papers will please copy, and send their bills to the Patent Office, with a paper containing this notice. 46 3

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**HARTSON & CO.'S** CELEBRATED TURNING Lathes, Planing and Drilling Machines—Having added extensively to our facilities, we are now prepared to execute orders for the above at short notice; also manufacture to order all tools used by machinists and engine builders. We now have on hand, ready for delivery, the following: Planing Machines, one to plane 25 feet long by 5 feet square; one 20 ft. by 3 ft.; one 18 ft. by 3 ft.; one 16 by 3 ft.; two 8 ft. by 30 in.; two 6 ft. by 25 in.; two 4 ft. by 22 in. Turning Lathes with screw gearing complete: one 22 ft., shears 42 in. swing; one 16 ft. 42 inch swing; two 20 ft. 26 inch. swing; one 13 ft. 26 inch swing; one 18 ft. 22 inch swing: also three vertical suspension drilling machines. The above are all made in the best possible workman-like manner and of the best material. G. B. HARTSON & CO., Globe Works, foot of 33rd street, North River, N. Y. 46 4*

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**HENCK'S FIELD BOOK FOR ENGINEERS**—Second Edition. D. APPLETON & CO., 346 and 348 Broadway. Just Published. Field Book for Railroad Engineers—Containing Formulæ for laying out Curves, Determining Frog Angles, Leveling, Calculating Earth Work, &c., &c., together with tables of Radii, Ordinates. Deflections, Long Chords, Magnetic Variation, Logarithms, Logarithm and Natural Sines, Tangents, &c., &c. By John B. Henck, A. M., Civil Engineer, one vol., pocket book form. Price $1.75. The first edition of 1,000 copies of this Work was sold off in four weeks, a sale almost unprecedented in works of this class. The Publishers have received letters from the following eminent Professors and practical Engineers, who commend it as the best practical elementary work on the subject of American Railroad Engineering:—Prof. D. H. Mahan, West Point; Prof. M. M. Gillespie, Union College; Prof. H. E. Eustis, Lawrence Scientific School; Prof. B. F. Greene, Rensselaer Polytechnic School; Prof. J. T. Benedict, New York Free Academy; W. J. McAlpine, State Engineer: E. S. Chesbrough, City Engineer, Boston; S. M. Felton, Philadelphia; G. W. Whistler, New Haven Railroad; Wm. E. Worthen. New Haven Railroad. 46 3

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**WARNER'S TURBINE WATER WHEEL**—These wheels are now made at the Wareham Manufacturing Co.'s Works, Wareham, Mass. They are too well known in New England to require any description: they are made of cast iron, with steel buckets firmly cast into the rims—a great improvement over cast-iron buckets in point of strength and economy of water: are not affected by back-water or ice. They are equally adapted to all manufacturing purposes. Parties wishing further information will be furnished with certificates, &c., by addresting J. WARREN, Wareham, Mass. 46 2*

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**FOR SALE, LOW.**—The Patent of a Self-Unloading and Adjusting Hay Elevator. Patented May 30th. 1854. Address, Horsham, Pa.
43 7* T. T. JARRETT, Patentee.

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**IRVING'S PATENT SAFETY CIRCULATING STEAM BOILER**—For Stationary, Locomotive, and Marine Engines. These Boilers having been thoroughly tested by scientific experiment and practical use, are being rapidly introduced into every part of the United States. Their claims to superiority are fully supported by the united testimony of highly respectable parties, who have given them the most successful trials. The following are among the chief advantages of this Boiler: 1st. Great increase of heating surface, with diminution of bulk. 2nd. Economy of fuel—a saving of more than 50 per cent, being effected over other boilers. 3rd. Economy of space, compactness, and strength of form. 4th. Increased safety from explosion. 5th. Freedom from incrustation. Circulars obtained on application at the Company's Office. Boilers of any required power furnished on short notice. Rights negotiated for all parts of the United States, England, France, and Belgium. All communications promptly attended to.

W. F. PHELPS,
45 3m Sec'y Irving S. Boiler Co., 347 Broadway, N. Y.

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**HARRISON'S SUPERIOR GRAIN MILLS**—Latest Patent of June 6, 1854.—The New Haven Mig Co. having the right for said Mills, will keep a supply constantly on hand. A liberal commission paid to agents for sale of the same. For further information address New Haven Manufg. Co., New Haven Ct. 45tf

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**MARYLAND INSTITUTE.**—Baltimore Seventh Annual Exhibition will be opened on the 18th September next, and close on the 16th of October. Circulars with rules and regulations, and any information required, will be promptly furnished by application to John S. Selby, Actuary of the Institute.
45 6* THOS. SWANN, Ch. Ex. Com,

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**MACHINISTS TOOLS**—Shriver & Brothers, manufacturers, Cumberland, Md., have for sale various sizes of Planing Machines, Engine Lathes, Drills, and Hand Lathes. These tools are built in the best manner and have received the highest testimonials at the Ohio Mechanics Institute, and from railroad and other shops where they are in use. Full descriptions and price list furnished upon application to SHRIVER & BROS., Cumberland, Md. 45 3*

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**OIL FOR MACHINERY**—Cumberland Brothers' Patent Metallic Oil and Grease may be obtained from the undersigned, who are the only manufacturers. An experience of five years, and increased facilities, will hereafter ensure the prompt filling of all orders. YOCKNEY & CO.,
Elizabethport, N. J., office 67 Exchange Place, N. Y.
N. B.—We have no agent in New York, nor any other place of business than the above. 45 12*

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**REYNOLD'S DIRECT ACTION** and Re-Action Water Wheel—This is one of the most simple, cheap, and efficient Iron Water Wheels now in use.—For description, cuts, &c., apply to SAML. B. LEACH, Agent, 60 Beaver st. N. Y. 45 13*

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**SUBMARINE ARMOR**—For sale,—A complete suit, with the Pump and rescuing apparatus, in excellent order and ready for immediate use. Address GEO. C. HOWARD, Tool Builder and General Machinist, 18th street, below Market, Philadelphia. 44 4*

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**PARTNER WANTED.**—In the foundry business, an old establishment, and in successful operation. Situated on a line of railroad, about 40 miles from Buffalo. This is a desirable offer. Address, if by letter, P. P., Box 27, Dunnville, C. W. 44 3*

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**BUFFALO MACHINERY DEPOT.** JAMES W. HOOKER, 36 Lloyd St., Buffalo, offers for sale all kinds of machinery, as follows: Engine Lathes, Planing Machines, Universal Chucks, Caststeel Borers, Drills, Leather and Rubber Belting, Packing and Hose Oils, Millstones, Portable and Stationary Engines, Boilers, and Machinery generally. 43 tf

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**PATENT ROCK DRILL.**—The simplest, cheapest and best ever offered to the public. For information apply to A. B. ELY, Esq., Boston, Mass., agent of North American Rock Drilling Company. 43 3m

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**READING'S PATENT CORN SHELLER** and Cleaner—capacity 200 bushels per hour. 9 first premiums awarded in the Fall of 1853. Patent Rights and Machines now for sale at the corner of 2nd Street and Pennsylvania Avenue, Washington, D. C. I challenge the world to produce its equal. Address personally or by mail. WILLIAM READING. 43 13*

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**THE EUROPEAN MINING JOURNAL,** Railway and Commercial Gazette. A Weekly Newspaper, forming a Complete History of the Commercial and Scientific Progress of Mines and Railways, and a carefully collated Synopsis, with numerous Illustrations of all New Inventions and Improvements in Mechanics and Civil Engineering. Office, 26 Fleet Street. London. Price $6 1-2 per annum. 43

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**T. M. CHAPMAN'S PATENT SAW FILING** Machine. The best known and without a rival. The subscriber offers for sale Territorial Rights, and also builds and sends machines wherever they may be wanted. T. M. CHAPMAN, Patentee, Old Town, Me. 40 10*

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**LEONARD & WILSON**—No. 60 Beaver st. and 109 Pearl st, have constantly on hand and for sale a full assortment of Machinists' and Carpenters's Tools, embracing every variety of Engine and Hand Lathes, Iron Planing Machines, Mortising and Tenoning Machines, Wood Planers, &c. Also, Leather Belting of all sizes made of the best oak tanned butts, stretched on powerful machines, riveted and cemented. 42 13*

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**PORTABLE STEAM ENGINES**—The subscriber is now prepared to supply excellent Portable Engines, with Boilers, Pumps, Heaters, etc., all complete, and very compact, say 2, 2 1-2, 3, 4, 6, 8, and 10 horse-power, suitable for printers, carpenters, farmers, planters, &c., they can be used with wood, bituminous, or hard coal; a 2 1-2 horse engine can be seen in store, it occupies a space 5 feet by 3 feet, weighs 1500 lbs., price $240; other sizes in proportion. S. C. HILLS.
26eotf Machinery Agent, 12 Platt st, N. Y.

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**FAIRMAN & WILLARD'S** BORING MACHINE, for boring car wheels. This is the best machine in use, and warranted to bore thirty wheels in ten hours, and bore them perfectly true. It is equally well fitted for boring Pulleys, Gearing, &c. Price $600, cash.
JAMES W. HOOKER,
43 4eow Buffalo Machinery Depot, 36 Lloyd St., Buffalo.

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**FOR RAILROADS AND MACHINE SHOPS.** I am prepared to furnish at the lowest rates, the following Oils: Pure Refined Sperm, Solar, Sperm, and Engine Oil, for locomotives, &c. Refined Elephant Oil, for burning. Lard oil, No. 1, 2, and extra. Lubricating, Whale, and Resin Oil, for heavy machinery.
JAMES W. HOOKER,
43 4eow Buffalo Machinery Depot, 36 Lloyd St., Buffalo.

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**MACHINERY.**—S. C. HILLS, No. 12 Platt-st., N. Y. dealer in Steam Engines, Boilers, Iron Planers Lathes, Universal Chucks, Drills; Kase's, Von Schmidt's and other Pumps; Johnson's Shingle Machines; Woodworth's, Daniel's, and Law's Planing Machines; Dick's Presses, Punches, and Shears; Mortising and Tennoning Machines; Belting; Machinery Oil, Beal's Patent Cob and Corn Mills; Burr Mill and Grindstones; Lead and Iron Pipe, &c. Letters, to be noticed, must be post-paid.
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**EUROPEAN PATENTS.**—MESSRS. MUNN & CO. pay especial attention to the procuring of Patents in foreign countries, and are prepared to secure patents in all nations where Patent Laws exist. We have our own special agents in the chief European cities; this enables us to communicate directly with Patent Departments, and to save much time and expense to applicants.

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**STAVE AND BARREL MACHINERY**—HUTCHINSON'S PATENT.—This machinery, which received the highest award at the Crystal Palace, may be seen there in operation during the ensuing season. Cutting, Jointing and Crozing Staves and Turning Heads. Staves prepared by this process are worth to the cooper from 20 to 40 per cent more than when finished in another way. Applicable alike to thick and thin staves. Apply to C. B. HUTCHINSON & CO., Auburn, N. Y., or at the Crystal Palace. 34tf

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**KENTUCKY LOCOMOTIVE WORKS**—Corner of Kentucky and Tenth streets, Louisville, Ky.—The proprietors of the Kentucky Locomotive Works would respectfully inform Railroad Companies and the public generally, that, having completed their establishment, they are now prepared to receive and execute orders with fidelity and dispatch. They will contract for Locomotives, Passenger, Baggage, Freight, Gravel, and Hand Cars, of every style and pattern, as well as all kinds of Stock and Machinery required for railroads. Particular attention will be paid to Repairing, for which they have every facility. They are also prepared to contract on favorable terms for building all kinds of Machine Tools, such as Turning Engines, Lathes, Planers, Drills, Slotting, Splining, and Shaping Machines of every variety of pattern. Having also a large Foundry connected with the establishment, orders for castings are solicited, and will be filled with promptness. Car Wheels of any pattern can be furnished on short notice. Double and single plate and Spoke Wheels of all sizes constantly on hand. Communications or orders must be addressed to OLMSTED, TENNEYS, & PECK, Louisville, Ky. 40 6m.*

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**PIG IRON**—Scotch and American; also English Boiler Plate and Sheet Iron, for sale at the lowest marketprices, by G. O. ROBERTSON, 135 Water st, cor. Pine, N. Y. 40tf

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**JOHN PARSHLEY,** No. 5 and 7 Howard st., New Haven, Ct., manufacturer of Machinists' Tools, and Steam Engines, has now finishing off 25 Engine Lathes, 6 feet shears, 4 feet between centers, 15 inches swing, and weighs about 1100 lbs. These Lathes have back and screw gear, jib rest, with screw feed, and the rest is so arranged that the tool can be adjusted to any point the work may require, without unfastening the tool, hence they possess all the good qualities of the jib and the weight lathe; they are of the best workmanship. Price of Lathe with count shaft and pulleys, $155 cash. Cuts, with full description of the lathe, can be had by addressing as above, post-paid. Also four 30 horse power vertical Steam Engines with two cylinders. Price of engine with pump and heater, $800 cash. For particulars address as above. 35tf

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**PATENT RIGHT FOR SALE.**—We are ready to dispose of the Patent Right, (or any part of it) of the best Stone Drilling Machine now in use, or we are prepared to furnish working machines at very reasonable prices, these machines will drill from 1 to 7 inches in diameter, and 100 feet deep, and can be worked by Hand, Horse, or Steam Power, one machine performing the work of twenty-five men. For further particulars and circulars with cuts address JAS. T. WHITTEMORE, Agent American Manufacturing Co., 39 State street, Boston, 40 tf

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**FULTON FOUNDRY AND MACHINE WORKS** S. W. corner of Green and Morgan streets, Jersey City, N. J. The subscribers are prepared to contract for Sugar Mills and Mining Machinery of every description. Horizontal Steam Engines of various sizes constantly on hand. All orders executed with promptness.
34 13* FIELDS, BROTHER & CO.

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**PALMER'S PATENT LEG**—"The best appliance ever invented." Pamphlets containing the testimonials of the first American and European surgeons, and other information concerning this invention sent gratis to all who apply to PALMER & CO., Springfield, Mass.: or 376 Chesnut st, Philadelphia. 42 13*

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**NORCROSS' ROTARY PLANING MACHINE.** The Supreme Court of the U. S., at the Term of 1853 and 1854, having decided that the patent granted to Nicholas G. Norcross, of date Feb. 12, 1850, for a Rotary Planing Machine for Planing Boards and Planks, is not an infringement of the Woodworth Patent.

Rights to use N. G. Norcross's patented machine can be purchased on application to N. G. NORCROSS,
208 Broadway, New York.

The printed Report of the case with the opinion of the Court can be had of Mr. Norcross. 36 6m*

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**MACHINERY FOR SALE**—The following machines are for sale at the "Scientific American" Office:—Alcott's Concentric Lathe, price $25.
Portable Mortising Machine, $20
Bushnell's Iron Drill, $25
All orders should be addressed (accompanied with the cash) to MUNN & CO., 128 Fulton st., N. Y.

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**MACHINISTS TOOLS**—Power Planers 4 to 16 feet long, weight 1,000 to 10,000 lbs. Engine Lathes, 6 to 19 feet long, weight 1,700 to 8,400 lbs., swing 21 to 38 inches. Hand Lathes, Gear Cutters, Drills, Bolt Cutters, Slide Rests, Chucks, &c., of best materials and workmanship constantly on hand, and being built, also the best Grain Mills in the country, "Harrison's Patent." For cuts giving full description and prices address NEW HAVEN MANUFACTURING CO., New Haven, Conn. 38 tf.

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**WOODWORTH'S PATENT** Planing, Tonguing, Grooving Machines.—Double machines plane both sides, tongue, and groove at one and the same time, saving one half of the time when lumber is required to be planed on both sides. Large assortment constantly on hand. Warranted to give entire satisfaction to purchasers. JOHN H. LESTER,
37 13* 57 Pearl st, Brooklyn, L. I.

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**ENGINEERING.**—The undersigned is prepared to furnish specifications, estimates, plans in general or detail of steamships, steamboats, propellers, high and low pressure engines, boilers and machinery of every description. Broker in steam vessels, machinery, boilers, &c. General Agent for Ashcroft's Steam and Vacuum Gauges, Allen & Noyes' Metallic, Self-adjusting Conical Packing, Faber's Water Gauge, Sewell's Salinometers, Dudgeon's Hydraulic Lifting Press, Roebling's Patent Wire Rope for hoisting and steering purposes, etc., etc.
CHARLES W. COPELAND,
35 tf Consulting Engineer, 64 Broadway.

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**PLANING, TONGUING, AND GROOVING**—BEARDSLEE'S PATENT.—Practical operation of these Machines throughout every portion of the United States, in working all kinds of wood, has proved them to be superior to any and all others. The work they produce cannot be equalled by the hand plane. They work from 100 to 200 feet, lineal measure, per minute. One machine has planed over twenty millions of feet during the last two years, another more than twelve millions of of feet Spruce flooring in ten months.. Working models can be seen at the Crystal Palace, where further information can be obtained, or of the patentee at Albany, N. Y
27 3m GEO. W. BEARDSLEE.

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**STATIONARY STEAM ENGINES**—The subscriber is now prepared to furnish, with or without pumps, boilers, &c., Horizontal Engines on iron bed frames, good strong, substantial, plain finished engines that will do good service, say from 4 horse, $215, to 30 horse, $1,037: they have Judson's patent valves, and will be warranted to work well. S. C. HILLS,
31tf 12 Platt st, New York.

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**A. B. ELY,** Counsellor at Law, 52 Washington street, Boston, will give particular attention to Patent Cases. Refers to Messrs Munn & Co., Scientific American,
16 1y*

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**NOVELTY IRON WORKS**—Manufacturing of Machinists' Tools: also Engine Lathes, with an improved Tool Rest, Lathes, and Iron Planers kept on hand: for sale by W. W. NICHOLS & CO., cor. B and Turnpike street, Boston, Mass. 41tf

© 1854 SCIENTIFIC AMERICAN, INC

# Scientific Museum.

(For the Scientific American.)

### Bread and Bran.

Some time ago a great noise was made by certain newspapers about a new and wonderful process of making bread, or rather of increasing the weight of bread, but, as is usually the case, it was, unluckily for the papers, proved in the Sci. Am. that this beautiful, economical and scientific discovery was mere moonshine.

The following information may perhaps point to the origin of that alleged discovery:

Mr. Sigle, of Wirtemberg, communicated to his government a new process of making bread, he extracts bran with hot water, containing a small quantity of sulphuric acid, and uses this extract instead of pure water to make dough; sulphuric acid makes, as has long since been known, the starch or amylum soluble.

To investigate this process, Professor Tehling made the following experiments:

1st, 1 lb. of bran and 6 3-4 lbs. of water were digested for 24 hours, at a temperature of about 100° Fah.

2nd, According to Sigle, 1 lb. of bran, 6 1-4 lb. of water, 3 1-4 drachms sulphuric acid, before diluted with ½ lb. of water, were treated at the same time in the same way.

A, 4 lbs. of flour were made into dough with water, yeast, and salt, as usual.

B, 4 lbs. of flour were made into dough with 3 lb. 3 oz. watery bran extract, No. 1, and yeast and salt.

C, 4 lbs. flour, 4 lbs. ½ oz. of acidulated bran extract, No. 2, yeast and salt.

The result was:

A. 6 lbs. 7½ oz. dough gave 6 lbs. 1 oz. bread.
B. 7 " 4 " " " 6 " 4½ " "
C. 7 " 8½ " " " 6 " 11½ " "

There was no difference in the taste of the three kinds of bread. C was not sour, and all three were apparently equally moist and well baked. The increase in weight in comparison with A, was in B 7 1-10 per cent., in C 9 6-10 per cent., it was mostly due to water. The bran extract used in B, contained 1½ oz. of solid matter, the acidulated bran extract used in C, contained nearly 1½ oz. of solid matter, the increase above this was nothing but water. The extracts of two kinds of bran, *a* and *b*, contained, when made with pure water, in *a*, 21, in *b*, 18 per cent. of substances containing nitrogen; when made with acidulated water, in *a*, 15 per cent., in *b*, 8 ½ per cent.; water extracts therefore from bran is more nutritious matter than acidulated water.

Bran bread has been used with the happiest result in constitutional costiveness, dyspepsia, &c., &c. According to Magendie's experiments, dogs fed on bran bread remain in perfect health, but fed on white bread made of bolted flour, die after some time. The bran therefore, must contain a peculiar nutritious substance. Mr. Mouries tells us, in " Compte's Rendus," 1853, that this substance has its seat, mixed with other matter containing nitrogen, on the inner side of the cuticle, the bran, that it is easily soluble in warm water, and that this solution, like diastase from malt, has the property of making starch soluble, and therefore digestable.

If 16 parts of paste, made of 1 part starch and 15 water, are mixed with 16 parts water, which has been digested with three parts bran, and kept at a temperature of about 102° Fah., (the temperature of the human body) the parts will become in 10 to 20 minutes, thin and fluid, and in two hours more than 5-6 of the starch will have been dissolved. If you let stand a mixture of ½ lb. of bran bread and 9 oz. water for 2 hours, in a temperature of 102°, it will be milky and thin, and contain now from 46 to 47 per cent. of soluble and 54 to 53 per cent. undissolvable matter. If you treat fine white bread, of bolted flour, in the same way, the mixture remains thick and only 7 per cent. are soluble and 93 per cent. undissolvable. The dissolving property of the bran seems to commence in the dough, but is completed in the stomach. Professor Poggiale, of Paris, found that bran contained 44 per cent. of digestible and 56 per cent. of indigestible matter; the use of bran extract must therefore be preferred to the bread made of bran flour, unless it is true, as some physicians say, that the beneficial effects of bran bread is due to the mechanical irritation caused by the coarse particles of bran on the intestines.

Dr. Heeren's newest experiments show that 100 lbs. flour from wheat gives at least 125 to 126 lbs. bread, and 100 lbs. flour from rye 131 lbs. bread.

Professor Tehling found that the water contained in well baked bread increases with the size of the loaf, the dough had lost in weight by baking:

In a loaf weighing 6 lbs. lost 10 per cent.
" " " 3 " " 10 8-10 "
" " " 1½ " " 14 "
" " " 1 " " 14 8-10 "

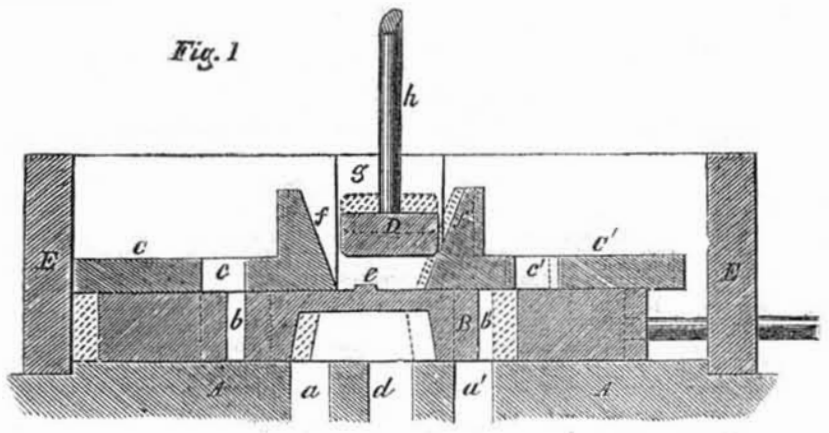
Or a loaf of 6 lbs. contains 4 per cent. more water than a loaf of 1 lb. made of the same dough.

A. Zumbrock, M. D.

Philadelphia, July 24th, 1854.

## ASHCROFT'S CUT-OFF VALVE.

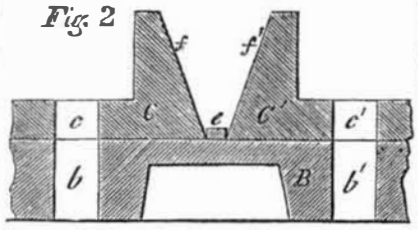
Fig. 1




Some have supposed that among the very great number of improvements that have been made in the steam engine, that nothing more could be done for its benefit; but such is not the case. The annexed engravings represent an improvement for controlling the operations of the cut-off, for which a patent was granted on the 13th of June last, 1854. Figure 1 being a longitudinal section of the valve box, slide valve, and cut-off, and figure 2 a like section, but with only the valve and cut-off, without the other parts. Similar letters indicate like parts.

The cut-off to which this invention is applicable, is one that is well known, consisting of two plates or valves working on the back of the slide valve. This improvement consists in furnishing the cut-off plates with two inclined planes, one for each plate, facing each other; and in placing between these two inclined

Fig. 2




planes, an adjustable stop bar, with which the inclined planes come in contact to arrest the cut-off plates in their movements with the slide valve, and thus cut-off the steam at some point in the first half of each stroke of the engine. The stop bar will arrest the motion of the cut-off plates, and cut off the steam sooner or later, according as it is nearer to or further from, the valve, and hence, by properly adjusting it, the steam may be cut off at any desired point under half stroke, or by attaching it to a governor it may be made to act upon the plates so as to govern the engine by the cut-off.

A is the valve seat; *a a'* the steam ports, and *d* the exhaust port; B is the slide valve, having the extension and the ports, *b b'*, which are commonly provided when the cut-off works on the back; C C' are the cut-off plates or valves, which have each a port C or C', corresponding in form with one of the ports, *b* or *b'*, in the slide valve. This port is at such a distance from the inner end of the plates that when the said inner end is in contact with two small fixed stops, *e e*, (one shown) on the back of the slide valve, the said port is in direct communication with the port in the slide valve. From the inner end of the cut-off plates, C C', rise the inclined planes, *f f'*, both of similar form, but inclining in opposite directions, that is to say, each inclining backwards from the inner edge of the face of the plate. The adjustable stop bar, D, extends across the steam chest, and has its ends properly formed to slide freely in grooves, *g g*, which are made perpendicularly to the face of the valve, in the sides of the steam chest, E. It has a rod, *h*, attached, which is intended to work through a stuffing box in the cover or back of the steam chest, and serves to adjust it. The slide valve receives the usual motion, and as it moves towards either end of the valve box, the cut-off plate next to that end is brought into contact with the end of the box, or with suitable stops arranged therein, and arrested in such a position that when the valve finishes its movement the ports, *c* and *b*, or *c'* and *b'*, as the case may be, are in full communication, in which condition they remain during the earlier portion of the movement of the valve in the opposite direction, but when the inclined plane comes in contact with the stop bar, the cut-off plate being arrested, causes the continued movement of the valve to close the port, *c* or *c'*, in which latter condition it remains during the remainder of the movement of the valve, and until the termination of the next movement. The operation is illustrated in figure 1. The engine is taking steam through the port, *a'*, that port being about half open, and the piston of the engine having made about one quarter of a stroke. The port, *b'*, in the slide valve is nearly closed by the cut-off, C,' which has been arrested by the stop bar, and the port, *b*, is coming into communication with the port, *c*, in the cut-off, C, which has been arrested by coming in contact with the end of the valve box. When the valve has reached the end of its stroke, the ports, *b c*, will be in full communication, the port, *b'*, having been some time closed. When the return movement of the valve commences, the cut-offs both move with it, and when the port, *b*, arrives at *a*, at the proper time to admit steam to the cylinder, the former port being left uncovered by the cut-off, *c*, allows the steam to enter; but as the movement of the valve continues, the cut-off, *c*, being arrested by the stop bar, closes the port, *b*, and cuts off the steam. As the movement of the valve terminates, the port, *b'* is uncovered, by reason of the cut-off, *c'*, being arrested by coming in contact with the end of the valve chest. During every movement of the valve the proper cut-off is arrested by the stop bar, and made to shut off the steam, and the other cut-off has its port brought into communication with the port in the slide valve. The time of cutting off will be governed entirely by the position of the stop bar, whose operation will be understood by reference to the dotted outlines in figure 1, above B. These outlines represent it as raised above the position in which it is represented in black, and it is shown that when in that position, the cut-off plate is allowed to travel further with the valve, and therefore does not cut off so early. This will explain how the steam will be cut off earlier in the stroke as the stop bar is lowered, or later, as it is raised, and it will be readily understood, that if the rod, *h*, is properly connected with a governor, the engine may be effectually governed by the action of the stop bar and the inclined planes. By raising or drawing back the stop bar, above, or clear of the inclined planes, the cut off may be rendered inoperative, both the plates, *c* and *c'*, assuming and remaining in the position shown in figure 2, and leaving the ports, *b b'* always open.

More information may be obtained by letter addressed to the patentee, Thomas Ashcroft, at Dorchester, Mass.

### Herring Fishing at the South.

A correspondent of the New Haven "Register," gives an interesting account of the herring fishery, as practised in the eastern part of the Carolinas. The herrings which are taken there, he says, are of a different species from those which are used in New England—being larger and less savory. They make their appearance shortly after the run of shad commences, although their grand run, as it is termed, does not take place until considerably later in the season. They always go in shoals, and unlike the shad, do not confine themselves to the deep water of the river, but enter the shallowest branches of sluices emptying into it.—The fact of the herring taking to the branches, where they may be easily caught, induces the inhabitants to watch the waters pretty carefully throughout the fishing season, and when a shoal enters a branch or inlet, the news is soon spread from house to house, and a motley assemblage of all ages and colors soon gathers on the banks, each individual being armed with his deep hand net. As soon as the main body of the shoal appears to have entered, they fall to work and fill up the mouth of the branch with brush, or throw logs across the more shallow places, to keep them from returning; and the poor fish have no alternative but to submit gracefully to their unenviable fate, death in the present and a frying-pan in the prospective. Sometimes several thousand fish are captured thus in the course of a single hour.

It is customary when the herrings enter the branch, for the person making the discovery to spread the news among his neighbors, so that all may stand an equal chance.

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